Telephony.
THE AMERICAN TELEPHONE JOURNAL
Comprising Telephony, American Telephone Journal, Telephone Weekly, Telephone Magazine, Telephone Securities, The Telephone, Sound Waves
PUBLISHED WEEKLY BY TELEPHONY PUBLISHING CORP.
608 S. Dearborn St., CHICAGO

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Entered as second-class matter September 4, 1908, at the postoffice at Chicago, Ill., under act of March 3, 1879.

Volume 95
Number 1
CHICAGO, SATURDAY, JULY 7, 1928
Subscription — 10 Cents a Copy
$3 a Year U. S., Cuba and Mexico
$4 Canada, $5 Other Countries

# Regulation Through Competition Authorized in Minnesota

For a number of years in the telephone field, efforts have been made to eliminate dual telephone service in the interests of efficiency and better service to the public. In the days before commission regulation, competition was looked upon as a most essential element in the regulation of telephone rates. With the establishment of the various commissions, they were given such powers which it was believed would preclude any necessity for the establishment of a competing exchange.

It has been some 20 years since the first commission was established, and the record of commission orders indicates that the various state commissions have been almost unanimous in refusing to grant permission for a telephone company to establish an exchange in a community where one exchange is already operated.

It is true that many times applications have been made for permission to establish competing exchanges, but commissions have always been able to find "a better way" in conserving both the interests of the public and of the telephone companies, despite whatever pressure may have been exerted on the particular commission.

* * * *

In view of this long record in favor of a single telephone system in a community, therefore, it was surprising to read of the decision of the Minnesota commission, reported in last week's issue, authorizing a telephone company to extend its lines into the village of Bagley and surrounding community which is already served by a company that is "physically and financially able, ready and willing to provide any or all service required of it, either by its patrons or the commission," according to one of the Minnesota commissioners.

* * * *

The decision of the commission in this case is a reversal of its position in several cases of similar nature which have been formally passed upon in the past three years. Those familiar with the case, moreover, declare that the commission's order is not based upon the evidence submitted, and cite the dissenting opinion of Commissioner Frank Matson, who, after quoting sections of the Minnesota telephone act pertaining to the case, declared that there is "much evidence in the record that the service is satisfactory and the complaints are more against the increased rates than the inadequacy of the service."

The increased rate was allowed by the commission as reasonable after full public hearing, but the subscribers objected to paying the increase, and many discontinued the service. Of course, neither the commission nor the Clover Telephone Co., operating in Bagley, can force the subscribers to use the service, but the fact remains that the service is there for them.

Lack of tact on the part of the manager of the telephone company, with consequently strained public relations, appears to be chiefly responsible for the situation. Commissioner Matson, while recognizing that the situation is unfortunate, emphatically expresses his belief that a duplication of the existing telephone service is not the proper remedy.

Not only would such duplication impair the investment of both companies, possibly to the extent of confiscation of one of them, but the commission's order makes competition the basis of regulation, and the commissioner does not believe that public convenience is sufficient to justify that course. That is the important point.

The record shows that the commission authorized an increase in rates and that subscribers, particularly those on the rural lines, objected to the increase. The situation was aggravated by some of the acts of the management and many of the subscribers withdrew. Some 300 of them then requested the Garden Valley Telephone Co., a cooperative organization, serving approximately 3,900 subscribers, to extend its lines to Bagley and to render service there.

As a result of these requests the Garden Valley company petitioned the commission for authorization to extend its service to the Bagley district, with a service rate somewhat less than the charges set by the Clover Telephone Co.

* * * *

In authorizing establishment of competition in Bagley, the Minnesota commission is evidently confessing itself unable to deal with a situation similar to a number that

have previously been settled by it, without resort to establishment of a competing exchange. It allows rates to an outside company which only a year ago were declared to be too low, and does not exercise the power which it undoubtedly has to order the company already in the field to adjust its rates if they are too high. Such action ignores the plain provision of the regulatory law.

* * * *

Possibly this is an order of expediency rather than one resulting from a sound consideration of evidence. This is a political year and the Minnesota commission is an elective body. One of the telephone companies involved in the case is a cooperative organization with strong support of its subscribers; the other company is closely owned and has incurred the ill will of its patrons. It is not strange, therefore, that a feeling exists that the votes concerned in the situation were taken into consideration when this unusual order was issued.

At least that is the natural opinion of Minnesota telephone men who compare this decision with others handed down by the state commission in similar cases. In 1925 the commission ruled contrariwise in three petitions filed by the People's Telephone Co. against the Deer Lake Telephone Co., by the Howard Lake Telephone Co., and by the Lake Shore Telephone Co. In 1926, also, the commission ruled differently in the two cases relating to the town of Lake Shore, and to the proposed construction of a toll line between Two Harbors and Little Marais.

The Garden Valley order is considered a reversal of the ruling made in these five cases.

* * * *

Telephone competition has largely been eliminated throughout the country, with the exception of Pennsylvania. In that state, owing to provisions of its constitution, dual telephone service was continued long after other states had practically eliminated it. However, just a few years ago the Pennsylvania constitution was amended and the dual systems of that state are rapidly being eliminated.

In Minnesota, competition has been gradually eliminated, with the exception of only one competitive point. The recent decision of the Minnesota commission, therefore, doubles the competitive situation in that state. Telephone men are asking, "Is Minnesota going backwards?"

* * * *

Two weeks ago a record was made in these columns of the declaration in the Republican national platform regarding public utilities. To complete the record, it may be stated that the Democratic platform contains no specific plank on utilities, but urges government control of national water power and pledges the party to a strict enforcement of the anti-trust laws.

The platform states that anti-trust laws have been thwarted, ignored and violated, "so that the country is rapidly becoming controlled by trusts and sinister monopolies for the purpose of wringing from the necessaries of life an unrighteous profit." After declaring that such monopolies are driving the smaller concern out of business, the Democratic platform says:

"Competition is one of the most sacred, cherished and economic rights of the American people. We demand the strict enforcement of the anti-trust laws and the enactment of other laws, if necessary, to control this great menace to trade and commerce, and thus to preserve the right of the small merchant and manufacturer to earn a legitimate profit from his business."

It is generally accepted that Governor Smith, Senator Reed, Senator Walsh and other Democratic leaders have a special rod in pickle for the so-called "power trust" which is still under fire in Congress and before the Federal Trade Commission. The latter body, by the way, will resume its hearings in its investigation of the electric light and power interests in September.

## COMING CONVENTIONS.

**Tri-State Telephone Convention, Erie, Pa., Lawrence Hotel, August 8, 9 and 10.**

**United States Independent Telephone Association, Chicago, Hotel Sherman, October 16, 17, 18 and 19.**

# Transmission Essential to Service

## Standards to Work for in Transmission Field—Requirements for Good Conversation—Productive Fields for Company Activity to Improve Transmission Service—Presented at Up-State Association of New York Annual Convention

By Benjamin K. Boyce,

*Chief Engineer, New York Telephone Co., Albany, N. Y.*

At a number of recent conferences votes have been taken as to the particular phase of telephone service most needing immediate attention and consideration.

If we were to do the same here and take a vote on the question of what are the essentials of good telephone service, almost everyone would probably include speed, accuracy and ease of conversation, with other votes being scattered among courtesy, service during side hours, better auxiliary services and a multitude of other items.

It would be difficult, or impossible, to classify speed, accuracy and ease of conversation in regard to their relative importance, as all are necessary. The vote would, of course, clearly indicate unanimous agreement that ease of conversation is an essential to good telephone service.

A review of the progress being made in the telephone art indicates that transmission is receiving its due share of attention in the field of development. The C. L. R. method of toll operation and the constantly increasing field of application of dial system equipment are matched in transmission work by developments in telephone repeaters, by the discovery of permalloy and its application to loading coils, and by transmission improvements in practically every part of the telephone circuit.

We should consider very carefully whether we are taking advantage of the transmission facilities which are now available to the same extent that we are taking advantage of the other improvements, or whether we are grudgingly giving only such transmission as the long-suffering public actually demands. To answer this question it is first necessary to determine a yardstick by which the various features of telephone service can be measured.

Means are fairly easily available for measuring most of the traffic features of service and many phases of the plant department's performance. From the transmission standpoint, it is not easy even to define the standard, much less to have any

convenient means for grading our service. There is a resulting confusion of ideas as to how good a job any of us is doing on transmission service. Let us see if we can formulate some simple definition of what standards we should work to in the transmission field.

The ideal toward which we are striving in transmission is a grade of service which will enable two telephone-users to converse as easily and freely over the telephone as though they were face to face. This ideal may seem to be impossible of attainment, but it is surely possible to come much closer to it than we are today.

In practice, the operating telephone man may unconsciously be judging transmission on the basis of a much lower standard, which may be defined somewhat as follows:

A grade of service which will enable one subscriber to understand a series of words or sentences spoken by another subscriber, without too much repetition, and without having to shout too loud, and without being misunderstood too frequently, and without too many serious complaints.

Under this definition good transmission is maintained only to the extent that the subscriber demands it. Such transmission will never be an asset in building up the telephone business.

What, in brief, are the requirements of the customer for a good conversation?

He wants a close, intimate and personal relationship with the man at the other end of the line. He must be able to give color and meaning to his words by the inflection and intonation of his voice, otherwise there is very likely to be a lack of complete understanding.

The requirements of the telephone are very severe in this respect, for you cannot use facial expression to help make your point, or see the other man's face to determine whether or not he understands. We frequently comment on a man having a "poker" face with the implication that a conversation with such a man is rather difficult and usually unsatisfactory. We all have "poker" faces over the telephone, excepting as our voice interprets the real meaning back of our words.

Some of the major factors in a good conversation are as follows:

1. The voice must be faithfully reproduced with all of the inflections and tones which are required to express the exact shade of meaning in a word or sentence.
2. The listener must not have to strain to hear..
3. The volume must be sufficiently great so that the speaker does not have to raise his voice, to converse freely.
4. The telephone line must be quiet and the room in which the telephone is located must be reasonably quiet. It is as impossible to converse freely over a noisy line as it is to carry on a confidential conversation in a boiler factory, or alongside of a locomotive that is blowing off steam.

**In Address Before Up-State Telephone Association of New York, Mr. Boyce Gave Many Excellent and Practical Suggestions for Improvement of Transmission.**

We should each of us try to determine for himself the value of giving the high grade transmission service which I have described. I think we can agree that the telephone industry, as a whole, is progressive and we are unwilling to accept for our customers anything but the best. This is not only in keeping with the expressed ideals of the whole telephone industry, but also with the tendencies of the times.

The railroads are finding that the public prefer to use the most modern trains. Hotels are providing every possible convenience that the traveling man can desire. In the automobile industry, the public is at all times willing to pay for better appearance of cars and better performance from the engine. The same is equally true of the radio. Not only the wealthy, but the great majority of American wage earners are willing to pay for high-priced, good sets in order to obtain good quality, adequate volume and ability to reach distant cities.

There seems to be no question that the customer is willing to pay for the best, when once the best has been made available on the market; and it is our responsibility to furnish this grade of telephone service. Good telephone service not only pays its own way, but is a very real asset of the telephone company in maintaining good public relations.

We now come to the question as to the most productive field for activity to improve the transmission service as we each of us find it in our own respective territories. We have recently made some observations on toll service which indicate, in a general way, some improvements which can be made.

The chart, Fig. 1, shows the benefits obtained from transmission improvement in three specific cases and indicates quite clearly that in every case the transmission improvement has resulted in a service more satisfactory to the public. You will note that in each case the transmission improvement resulted in a higher per cent of calls classified as entirely satisfactory, in a reduction in repetitions, in a reduced number of unfavorable comments and in an increased number of favorable comments.

It might be mentioned that in the case of Buffalo-Rochester, the number of poor transmission tickets was reduced from 140 per month prior to the change, to 16 per month since the change; also, the operator's work time on the circuits was decreased by an average of 22 seconds per call. In this case, therefore, the transmission improvement not only provides a more satisfactory service, but also substantially reduces operating costs for the telephone company.

One of the things that does not show up in this chart is the fact that calls which are entirely satisfactory to the subscribers, and

| Case | No. of Observations | | Transmission Equivalent TU | | % Overall* Improvement | Repetitions per Minute | | % O.K. Calls | | No. of Favorable Comments | | No. of Unfavorable Comments | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Old | New | Old | New | | Old | New | Old | New | Old | New | Old | New |
| Buffalo-Rochester | 240 | 199 | 18.3 | 9.8 | 26.3 | .77 | .59 | 79 | 96 | 0 | 1 | 36 | 11 |
| Rochester-Syracuse | 95 | 88 | 16.1 | 10.3 | 19.3 | - | - | 54 | 84 | 0 | 1 | 0 | 0 |
| Albany-New York | 135 | 120 | 9.3 | 6.0 | 14.2 | .41 | .38 | 93 | 97 | 0 | 4 | 9 | 4 |

* Based on 7 TU Terminal Loss at each end.

**Fig. 1. Summary of Results of Service Observations on Three Important Terminal Groups in New York State Before and After Changes in Toll Circuit Equivalents.**

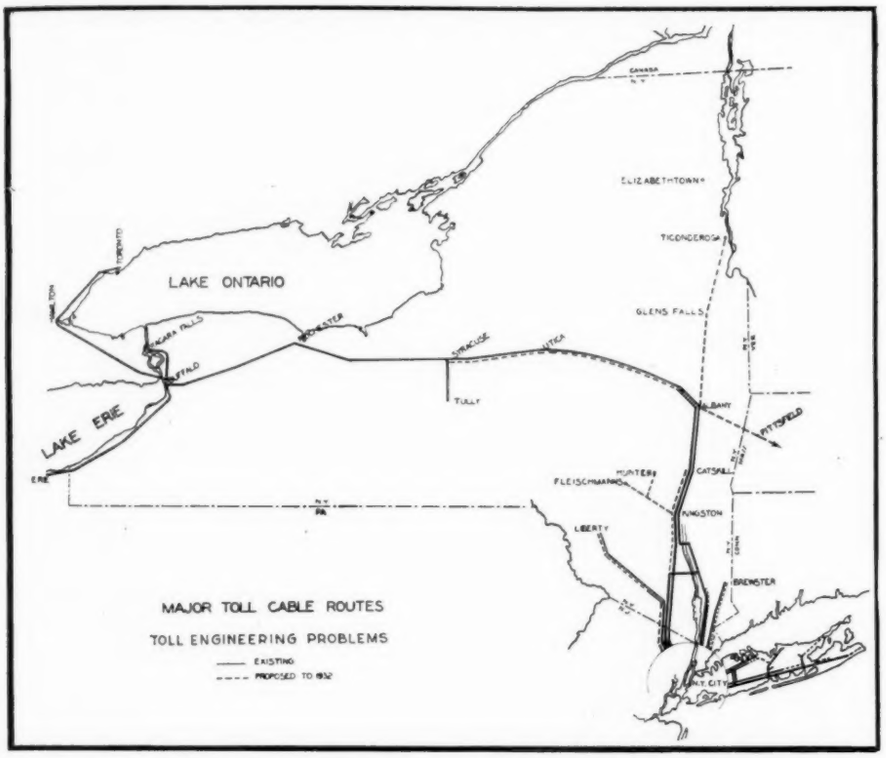


**Fig. 2. Major Toll Cable Routes in New York State Showing Existing and Proposed Telephone Cables in 1932.**

calls which are most unsatisfactory, seem to be distributed fairly uniformly over the various toll lines in a group; and further, a very good call between two offices put up over a given toll line may be immediately followed by another call between the same offices, over the same toll line, and on which the transmission is very poor.

This indicates that transmission on toll calls is as much dependent upon the condition of the subscriber's telephone set, the subscriber's line to the local office and switchboard conditions, as it is upon the toll lines themselves. A spotty and unsatisfactory toll service will result with the best toll lines that can be obtained if the local plant is not well-designed and properly maintained.

A subscriber cannot discriminate between trouble on the toll line plant and trouble on the local plant, and the result of poor conditions in either is the same from his viewpoint, i.e., he continues to think of the toll service somewhat as he does of the weather. He cannot be sure of a satisfactory call until after he has made it.

On the toll line part of the problem, we are making real progress right now. During the past year we have improved the transmission on about 200 of the more important and longer groups in the state by a reduction of the transmission losses by more than 25 per cent. During the coming year we expect to obtain a further improvement on 100 other groups of about the same amount.

These results are being obtained by the use of telephone repeaters and the very large toll cable extension program on which we are now engaged. Fig. 2 shows toll cable extensions and Fig. 3 shows repeaters. The completion of cable work and repeater equipment now engineered will give further very substantial improvements in our toll plant.

The transmission troubles in the exchange plant are probably more difficult to detect and to control than in the toll plant. The local plant is more widely distributed and the need for high transmission standards in the local plant is not so immediately evident as in the toll plant. A complaint of poor transmission on a toll call is usually taken to indicate a trouble on the toll lines, until it is proved that the trouble exists on the local lines.

A recent investigation of over 1,000 transmission complaints on toll calls indicated that this point of view is incorrect. The results disclosed the fact that over three-fourths of the trouble found was actually located in the exchange plant and only one-fourth of the trouble was located in the toll plant. A somewhat similar condition exists generally and our routine toll transmission investigations show that a very large number of the troubles found are located in the local plant.

With this thought in mind, we have recently completed in the Upstate area a fairly careful transmission test and inspection of the large toll users in Troy. Troy is, so far as we know, an entirely typical city in which the transmission conditions are fairly good. Yet in Troy the investigation indicated that a considerable amount of trouble exists and that it can be cleared up in this manner at a very small cost.

The troubles found included such items as defective transmitters and receivers, telephones installed in very noisy locations and noisy cords. One or more of these and certain other troubles were found on slightly more than half of the stations visited. These troubles are of such a nature that without much question they will exist very generally in the telephone plant if measures are not taken to prevent them.

If to these troubles are added rundown dry cells in magneto areas, troubles found in the subscribers' lines, such as high resistance joints, grounds, poor trimming, etc., and central office trouble, it is quite

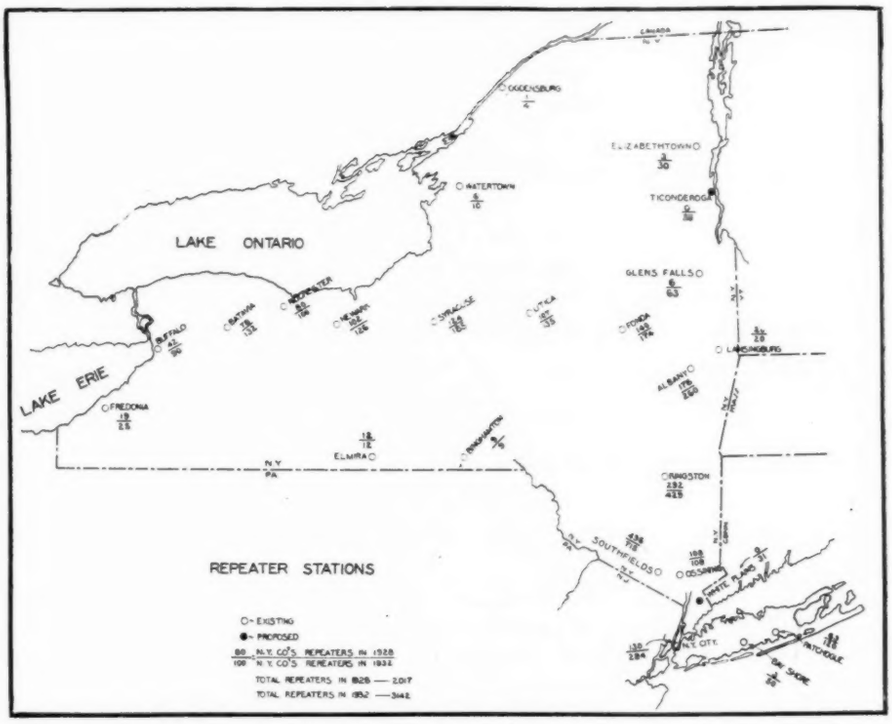


**Fig. 3. Repeater Stations in New York State With Expected Development to 1932.**

evident that there is in the local plant an amount of trouble great enough not only to impair the toll service seriously but also definitely to react on the grade of local service.

This point is further emphasized by another investigation carried on in Buffalo. A questionnaire was circulated among a large and representative number of subscribers, covering various phases of telephone service. It is a matter worthy of very careful study that the local transmission was criticized as much as any part of the service. A review of the conditions indicated that this probably resulted from a wide variety of causes, including matters of design, as well as of maintenance.

I have prepared a few simple experiments which will demonstrate the transmission effect of a few common troubles. The equipment is now under development by the American Telephone & Telegraph Co. and is now being shown for the first time in New York state. It consists essentially of a small meter so arranged that the scale and needle can be projected on the screen, as shown in Fig. 4.

The circuit is so arranged that the needle is operated by a tone which takes the place of the voice. The tone is adjusted in volume so that when no equipment is introduced into the circuit the needle points approximately to zero. By introducing equipment into the circuit, the deflection on the needle is changed and the transmission loss in the equipment introduced into the circuit is read directly in transmission units on the scale.

For the benefit of those who are not entirely familiar with the expression "transmission unit," I might say that this is an arbitrary unit generally accepted as a measure for the loss in the talking current as it flows along the connection from the transmitter at one station to the receiver at the other station. It is usually referred to as TU instead of transmission unit.

When the total loss from the transmitter to the receiver is relatively small, say 10 TU, the connection is a very good one. When this loss gets to be more than 22 or 25 TU, difficulty may be experienced, especially if there is any trouble on the connection.

Let the normal transmission loss from the talking subscriber to the listening subscriber be about 20 TU. Then, if there is on the line a trouble causing an additional loss of 5 TU, the total loss in talking current between the two subscribers will be 25 TU. If two troubles occur on such a line each of them causing a loss of 5 TU, then the total loss between the two subscribers will be 30 TU, which is getting very close to the upper limit of good service.

The first circuit tested shows that under normal conditions an "A" operator's common battery cord introduces a transmission loss of about 1 TU. If the non-inductive winding on the supervisory relay is open, an excess loss of about 1 TU is introduced.

If the tip side of the line is solidly grounded, either in the office or on the subscriber's line, an additional loss of about 3 TU is caused on the connection. If the repeating coil is incorrectly installed, with one winding reversed, a transmission loss of 40 to 50 TU is introduced, and it is entirely impossible to talk over a connection involving such a transmission loss.

The last trouble for an operator's cord circuit is a reversal of the sleeve and ring wires at the repeating coil. This causes an excess transmission loss of 4 to 5 TU. The second, third and fifth cases indicated are the kinds of trouble which do not put a line or a piece of equipment out of service, and they might exist in the plant indefinitely, excepting for transmission measurements.

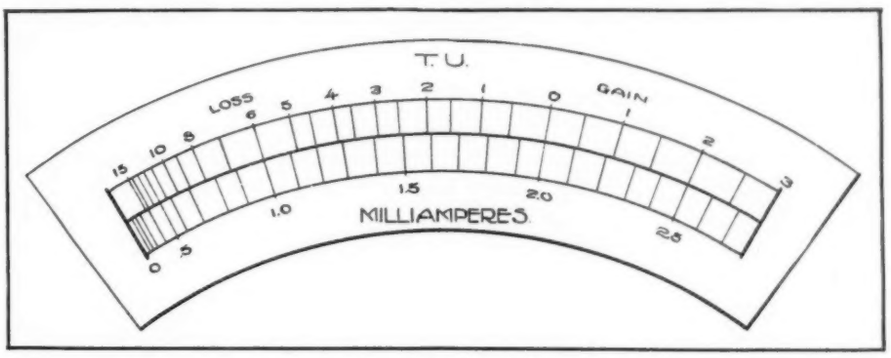


Fig. 4. Demonstration Meter Scale.

The second circuit shows the transmission loss which results when the operator comes in on the connection with her circuit bridge across the cord circuit. Another circuit is that of a toll cord. Normally there is very little transmission loss in a modern toll cord. When the toll operator listens-in, she introduces an increased loss of 3½ TU.

When it is considered that we are now furnishing circuits between all Upstate points with transmission equivalents varying from 6 to 10 or 11 TU, it will be seen that the operator introduces a transmission loss from a third to a half as great as the total loss in the toll circuit. Having this condition in mind, all modern toll boards are equipped with a special circuit to enable the toll operator to monitor on the toll connection without causing such a large transmission loss. This condition causes an increased transmission loss of only .3 TU.

One of the test arrangements uses a dirty plug which in actual service would cause a scratchy connection or an actual cutout. As it is moved in the jack, the meter needle moves back and forth, indicating the poor connection.

Another frequent cause of unsatisfactory service is a defective cord, which is not quite open but, nevertheless, causes scratching noises on the connection. As the cord is moved, the needle varies. If we were listening on the connection under these conditions, we would get a series of scratches and bangs, seriously interfering with the service. The same is equally true with worn-out keys or keys out of adjustment.

There is another type of trouble which can be readily shown with this kind of an experiment. This is a high resistance joint in iron wire. The one demonstrated caused a transmission loss of about 7 TU. If this high resistance were on a line with any joint use with power circuits, it would, of course, produce very serious noise. When this high resistance joint is dropped in water the transmission loss is materially decreased; when it is dried out again, the transmission loss again increases.

It has been our experience that rusty joints in iron wire not infrequently are found with 200 ohms resistance or more. One that has approximately 200 ohms resistance causes a transmission loss of between 2 and 3 TU. It should be remembered that, while this is a serious transmission loss to introduce into a subscriber's line, it is probable that a more serious effect of a high resistance joint is in the noise which is introduced. Under certain conditions, a 40 or 50-ohm joint would make the line extremely noisy.

The next experiment shows the effect of rundown dry cells at local battery stations. With new cells there is a slight increase in transmission loss during the first short interval after the receiver is taken off the hook but after that the loss stays practically constant.

With the three dry cells at cutoff, the transmission loss initially is 2 or 3 TU and it increases to 5 or 6 TU. This is a very practical question that involves the grade of transmission which we furnish to important large telephone users who are equipped with magneto sets.

Another condition is shown using two new dry cells on a substation set designed for the use of three dry cells. Under these conditions a transmission loss of 2 or 3 TU is introduced, even with new dry cells.

We have left for consideration the most important question of all. What are we going to do about furnishing and maintaining the proper grade of transmission service? The question naturally divides itself

into two parts; the first one concerning the design of the plant, and the other one its maintenance.

From the design standpoint, it is perfectly obvious that the measures to be adopted must be preventive measures, i.e., after the plant has once been built it is too late to change it economically, or modify it, along the right lines. Under this heading we can mention three specific items:

1. When plant additions are engineered, very careful consideration should be given as to the type of plant being provided. If technical advice is required on this subject, it should be obtained. Do not hesitate to get good advice—you will find that the proper type of plant is always cheapest in the long run and usually cheapest initially.
2. New equipment should be given a complete initial test for transmission efficiency and relay adjustment. In our experience the amount of trouble detected by these tests on new plant is sufficient to amply justify their cost.
3. Minor changes in and additions to the plant are being made continuously, and sometimes inadequate engineering supervision is given to these changes, with the result that incorrect equipment is used, or the proper type of equipment is improperly installed.

A recent case which came to our attention is that of a repeating coil installed in a toll line. It gave very good talking efficiency but was entirely inadequate from the standpoint of ringing efficiency. It might be mentioned in passing that the cost of installing this incorrect type of coil, detecting and locating the trouble and clearing it has been many times more than the cost of installing the proper type of coil originally. This leaves out of consideration, altogether, the inconvenience which has been caused to our customers.

Transmission maintenance covers pretty nearly the entire maintenance field, for practically any trouble in the telephone plant is likely, sooner or later, to cause transmission trouble.

In the local plant, especially, transmission maintenance is largely a matter of preventive maintenance because of the possibility of fairly substantial troubles existing on an individual subscriber's line, which will cause complaints on toll service, but which cannot be readily traced to the subscriber's line on which the trouble actually is located. Also, if we wait until the plant becomes so bad that the subscribers complain about transmission service, we are letting the service deteriorate to a point far below the service standards, which we should attempt to maintain.

In discussing maintenance, I would like to make it clear that the problem is not confined to connecting companies' plants. We, in the New York Telephone Co., have a similar problem on which we also are working continuously. Our plant people have probably called all of you occasionally, regarding transmission complaints on calls terminating in your territory.

I want to repeat what has been said to you many times: that in the handling of these complaints your interests and our interests are exactly the same; that is, to find the trouble and eliminate it so that it will not cause further unsatisfactory service.

On these complaints we always inspect that part of our own plant which is involved as carefully as we ask you to inspect yours, and there is no thought at all of "pinning" the trouble on either the connecting company or the New York Telephone Co. We all know that there is now, and always will be, some trouble in the plant and that the service will be improved to the extent that this trouble is eliminated; and it is a joint problem between your connecting companies and the New York Telephone Co.

As to specific recommendations regarding increased maintenance effort, I can do no better than to cite the maintenance program which we are attempting to follow for ourselves, some of the major items of which are as follows:

1. Single out your important and busiest telephones and apply intensive maintenance methods to these stations. Inspect them to make sure that their equipment is of the proper type and in good shape; and, especially, make sure that the dry cells at local battery stations are replaced at sufficiently frequent intervals. We are now actively engaged on this and have classified our stations on the basis of the relative amount of toll business.
2. Our maintenance activities over the past year have indicated the very real importance of a better job on tree trimming and the general condition of the subscriber's line circuits. Included under this heading are, of course, high resistance joints in old iron wire.
3. Dry cell replacements. As has been mentioned, we are planning to replace dry cells at the stations of the large toll users once a year, or more frequently if necessary. We are planning to maintain a card record for all stations which will show the age of the dry cells and from this record can insure the replacement of the batteries at proper intervals. With certain cells this interval should be 12 to 15 months. With the best batteries now available this period will be somewhere between 18 and 24 months.

In connection with the maintenance questions which are occasionally raised, we are planning to have at least two men in the plant department who will be available for such use as you wish to make of them in connection with general plant maintenance, whether on transmission or other phases of the work.

These men will be equipped with transmission measuring sets and the other usual testing equipment. They will be able to do for you exactly the same kind of work which we are doing on our own plant. We hope that you who do not have these testing facilities will call on these men frequently and freely. They will furnish a point of contact on maintenance questions which should be of very real mutual benefit.

In closing, I want to emphasize the fact that the telephone business in the state is a joint responsibility between the connecting companies and the New York Telephone Co.; and particularly in the matter of transmission maintenance, as well as the transmission design of the plant, you in the connecting companies have a real responsibility to perform, the same as we in the New York Telephone Co., and to the extent that we can get together and work these problems out jointly, we will be able to do our everyday job a little better and be able to produce an improvement in the transmission service which will be substantial and will be appreciated by our customers. It should result in a greater general all around usefulness of the telephone.

## Omaha Engineering Firm Acquires Wisconsin Properties.

The W. N. Albertson Co., public utility engineers and operators, with headquarters at Omaha, has entered the telephone field, and announces these purchases: The Belleville Telephone Co., Belleville, Wis.; Newburg Telephone Co., Newburg, Wis.; Central Telephone Co., Oregon, Wis., and Ree Heights Telephone Co., Ree Heights, Wis., along with the plant of the People's Gas Co. at Marshfield, Wis.

Mr. Albertson announces that these are the first of a series of deals that he expects to put through for the acquirement of telephone properties in the Middle West, and that all of them will be operated from Omaha. George W. Kalweit is vice-president and L. H. Albertson is in charge of a branch office at Milwaukee, Wis., which will have direct charge of the properties.

Until recently Mr. Albertson and Mr. Kalweit were chief owners and operators of the Central West company, which operates a number of midwestern electrical properties. Neither is a telephone man, although they have been in the public utility business for a number of years. Mr. Albertson was formerly general manager and Mr. Kalweit general auditor of the North American company, which operated the Detroit-Edison company, the Milwaukee Light & Railway Co. and the United Electric Light Co., of St. Louis.

## Former Bell Man Purchases Two Arkansas Companies.

S. A. Lane of Little Rock, Ark., former head of the Southwest Telephone Co., has bought the interests of the local stockholders of the Johnson County Telephone Co., which consists of exchanges at Clarksville, Lamar, Hartman and Coal Hill.

Mr. Lane recently purchased the interests of the Citizens Telephone Co. in Logan county, which joins Johnson county on the south. The Citizens Telephone Co. consists of these exchanges: Paris, Subiaco, Scranton, Prairie View, New Blaine, Ratcliff, Branch, Charleston and Booneville. Both are in counties well known for their rich coal fields. The Johnson county exchanges are in a large gas field.

# Present Status of Program Service

## Methods of Distribution of Program Service Over Wires—Carrier Current Systems—Audio Frequency System and Its Operation—Address at Annual Convention of Iowa Independent Telephone Association at Des Moines, Iowa

By H. T. McCaig,

*Assistant Chicago Manager, Stromberg-Carlson Telephone Mfg. Co.*

[AUTHOR'S FOREWORD: Mr. MacKinnon in his address at this convention sounded a note which undoubtedly awakened a responsive chord in every man who heard it.

Men with children growing up realize the need of these youngsters for an environment of liberty and freedom of action so that the proper initiative can be kindled and fostered. The spirit of youth must not be crushed by a narrowed, and narrowing, choice of occupation. Huge centralization is not necessary for the development of economic methods and practices. The research bureaus of our federal and state governments, our state universities, our colleges, and other agencies have made available to all individuals and small groups of workers the methods and processes which make for successful economic operation.

Centralization carried to extreme ends does not bring about the lowest cost per unit. In fact, the increased overhead expenses of a big organization often defeat the avowed purpose of such an organization by introducing contributing elements of cost which overshadow savings otherwise effected through volume production.

Many economists have for some time continued to call attention to the apparent fact that it is intensive centralization, the building-up of our great cities with their polyglot population—too frequently with un-American ideas and ideals—that is the cause of the moral decay of our civilization; is responsible for the unsatisfactory reaction to law and order.

The American ideal must be retained if American supremacy is to be maintained. Our business man of the community—be he doctor, lawyer, merchant, telephone man—must have the feeling that his is the job of supplying the service of the community in his line; that it is his stewardship. As a good steward he will seek diligently to make it more valuable day by day, year by year. He will not wrap it in a napkin and hide it away. To accuse Independent telephone men of such slothfulness is to contradict the testimony of the years of Independent telephone development.]

* * *

Soon after radio became popular individuals began to install more than one headset on their radio receivers, so that several persons could listen to the same program as it was received.

When loudspeakers came on the market, it was found that entertainment could be delivered to several rooms by wiring more than one loudspeaker to the output of the receiver. In this manner, by successive steps, it was found that programs could be delivered to a great number of loudspeakers and over considerable areas.

Even before the advent of radio, a crude sort of program service had actually been attempted, with more or less success, by using the phonograph in connection with telephone lines. In this case a telephone subscriber called for the service in the same manner as he called for a distant subscriber, whereupon the operator would connect him to a line circuit equipped with an ordinary telephone before which a phonograph was playing.

### Observations About Success and Authority.

**Your success depends largely upon your ability to please the man above you and to train a man to take your place below you.**

**Authority should never be divided. Better results can be obtained by concentrated authority, even if the head is somewhat under 100 per cent efficient.**—Excerpts from the Memorandum Book of Theodore Gary.

However, the possibilities of distributing program service were not fully realized until the vacuum tube made it easy to build amplifiers with sufficient capacity to handle the loads which such service imposed.

Work in developing this type of electrical service has progressed principally along two lines. In the one branch the use of high-frequency carrier currents to saturate a wire network is employed. In the other, straight audio frequency voice currents are impressed upon the wire network.

In the first mentioned field one system, which is receiving a working test, impresses modulated carrier frequencies upon certain cable pairs in a telephone system. From these pairs as the field, the remaining working pairs of the cable are saturated. Thus any telephone pair becomes an antenna from which the modulated frequencies may be picked up by a suitable receiver.

The carrier frequencies usually employed are from 85 to 200 kilocycles and as high as three programs have been sent over the carriers within this band of frequencies. With this arrangement it is claimed that there is no interference with the regular telephone service, and very little trouble experienced in the program service system from the operation of the telephone equipment.

The transmitter required for impressing each program to the system for a telephone exchange of 6,000 subscribers is in the neighborhood of 50 watts output capacity.

Where the carrier system is used it is necessary to have a receiver at the subscriber's station capable of responding to the frequencies impressed on the telephone system. Keys corresponding to the number of programs allow the subscriber to select his choice of entertainment. Two stages of audio frequency amplification are required to bring the program through with sufficient volume to operate the loudspeaker. A volume control allows the listener to adjust the set to suit his individual taste. The receiver antenna post is connected to the telephone wire serving the premises by means of a low-capacity condenser.

The carrier means of delivering program service may be applied to power networks and considerable research work has been directed to this phase of development. It has been found, however, that power networks have many more obstructions in their physical structure than telephone networks. Telephone networks, being built purposely for voice transmission, lend themselves particularly well to program service requirements.

Up to the present time the audio frequency system of transmission of program service seems to have been applied to commercial use in a more extended manner than the carrier system. A considerable number of such systems have already been installed in the United States, ranging from multi-office systems, serving as high as 1,650 subscribers, to smaller systems serving less than 100 subscribers.

In this type of program service the audio frequency characteristics are impressed upon the wire network by suitable amplifying devices. At the subscriber's station a loudspeaker reproduces the program. The loudspeaker is usually supplemented by a volume control to allow the subscriber to adjust the volume to his liking. To be correct in operation this control must maintain the line impedance constant when the volume of the loudspeaker is decreased, or vice versa.

In most instances the program service companies have leased lines of the telephone companies in the towns wherein they operate. Where cable pairs form the supply network it may be seen that the usual high impedance loudspeaker would be unsuitable for installation at the subscriber's premises.

This is due to the fact that comparatively high line voltage would be required to properly operate them, and this would result in the transfer of an objectionable amount of crosstalk from the program service circuits to the telephone circuits. For this reason low impedance loudspeakers are best adapted to program service systems using telephone companies' distribution systems. Ordinarily a speaker of 500 ohms' resistance at 1,000 cycles serves this condition satisfactorily. This impedance proves to be an average match for the longest lines served.

**Distortion in Audio Frequency Systems.**

In the audio frequency type systems, two kinds of distortion must be guarded against in order to produce high quality reproduction. These may be termed frequency distortion and non-linear distortion. The first results from the inability of a system to transmit all frequencies with the same gain or loss, while non-linear distortion is produced when the system introduces frequencies other than those fed into it. Careful design, especially in the transformers, largely eliminates the first danger. The latter, however, is always introduced when amplifier tubes are loaded beyond their capacity in an effort to gain more volume.

When an ordinary horn type speaker or inefficient cone speaker is used on an overloaded amplifier, the non-linear distortion is not strikingly noticeable except, perhaps, as giving a certain roughness to the tone, on account of the inability of such speakers to respond to high frequencies.

However, when a high-grade cone speaker that is capable of reproducing the high frequencies so essential to naturalness is used with an overloaded amplifier, the overload frequencies manifest themselves as a rasping, rattling, "papery" sound in the speaker, and, in most cases, make the reproduction unbearably harsh.

This is an explanation of why high-quality cone speakers often appear to give poorer results than inferior horn type speakers when used in connection with low grade radio sets. The fault is not in the speaker, but is due to amplifier overload. Were the same two speakers compared on an amplifier having adequate output capacity, the superiority of the cone speaker would at once be evident.

Certain program service companies have already segregated their wiring or propose to do so in the near future, so that crosstalk danger will largely be eliminated. This permits the design of last stage central office amplifiers to provide for a much higher level of output and also makes possible the use of high impedance speakers.

Another means of reducing the amount of outside plant required for service distribution is receiving some consideration. This provides for sending programs out over the wires at a very low level, and then supplying an amplifier at the subscriber's station to bring the volume back to a point where a loudspeaker may be operated.

Very little has been done in a commercial way in the audio frequency systems to give more than one program simultaneously. Several patents have been allowed for schemes covering this feature, among which are dial systems using selectors at the central office, and ground systems which use the two sides of the line and keys to ground for selecting the program desired.

The usual sources employed by program service companies for procuring programs are those derived from the use of high-grade receivers by which suitable material is picked from the air, the use of magnetic pickups to reproduce phonograph music, the use of microphones to provide original selections from studios, churches, public addresses, etc., and purchased programs, direct from regular broadcast studios.

When pickup receivers are used for this purpose, they are installed in some location where radio reception is exceptionally good. The output of the receiver is then stepped down to a proper level to be fed through telephone cable, carried to the office distributing amplifiers and stepped back to the values originally impressed. It is then applied to the banks of amplifiers.

To illustrate how well some of these programs are being given, the following incident may be noted. In the broadcasts of one of the recent radio shows, several artists who have had their work recorded for the phonograph were on the air. This entertainment was picked up and placed on the program service company's bill for the evening. Almost immediately patrons began calling the program service company's director asking him why he was giving out phonograph music when so much good material was available from the radio show.

**Advantages of Audio Frequency.**

It is claimed for the system using audio frequency distribution that one of its chief advantages lies in the fact that there is practically no apparatus to service or to be manipulated by the subscriber. This makes it especially desirable for elderly people, those not mechanically inclined, or people with very little time available. With the use of a loudspeaker only at the subscriber's station, it is found that space is conserved, which makes it popular for small apartments.

Several variations from regular city or community program service have been designed for particular requirements. One of these consists of a system used for schools. In this variation all schools of a city coming under the jurisdiction of the school superintendent may be wired together. With the proper arrangement of jacks and loudspeakers, one person may talk to all classrooms at once, or as many rooms or schools as are switched into service from the central point of control.

This provides a means of conveniently addressing all students desired at a predetermined time, so that prominent educators may be secured to supplement the regular school course with lectures. Entertainment may be provided for holiday or special occasions; talented students may be encouraged by allowing them to go on the air and to be heard by their fellow students; and other special needs be met.

**Apartment House Service.**

Large apartment house owners have found that program service is a modern means of making their rental space more attractive to prospective patrons. In many of the new and larger apartments wiring is installed during the period of construction to take care of this feature. Usually the wiring and equipment is arranged to provide a choice of at least two programs.

When receivers are used to supply programs to an apartment house system, they are generally installed on the roof or top floor so that the least possible interference from local sources is obtained. Thus, as far as radio is concerned, every apartment dweller may have the advantage of the quietest possible reception. The magnetic pick-up and phonograph usually form a supplementary source of program supply.

Modern hotels employ another variation of program service to advantage. Loudspeakers are installed in the public rooms such as the lobby, lounge, ball rooms, etc., while headsets or speakers are furnished in each guest room. By this means program service can be furnished to the regular hotel patrons. Jacks or keys in the sleeping rooms allow the guests to disconnect the service when not in use.

Much the same type of system is used for hospitals as for hotels. Headsets are used at the beds to prevent noise and disturbance. This service has been found a great aid to convalescence as it enables patients to while away the time which often hangs heavily upon their hands.

Due to the great popularity of program service in cities where it has been installed with the purpose of giving high quality reproduction, it is bound to be a valuable adjunct in the future to public service companies. Up to the present the field scarcely has been scratched, and there is every reason to believe that further developments will provide increased facilities for deriving revenue from this source.

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## Prices in the Metal Markets.

New York, July 2.—Copper—Firm; electrolytic spot and future, 14¾c. Tin—Weak; spot, $46.12; futures, $45.75. Lead—Steady; spot, New York, 6.30c; East St. Louis, 6.15c. Zinc—Firm; East St. Louis, spot, 6.20@6.25c; futures, 6.22@6.27c. Antimony—Spot, 9.37@9.50c.

# Putting Personalities in Advertising

## Series of Advertisements "Introducing Your Public Servants" of Lincoln Telephone & Telegraph Co., Lincoln, Nebr., Successfully Used in Newspapers Past Three Months—Establishes Background for Employes' Sales Efforts

By Miss Leona Ahlman,

*Assistant Editor, Lincoln Telephone News, Lincoln, Nebr.*

To the average telephone subscriber, the telephone company is represented by the employe who greets him at the counter and takes his order for service or his check in payment of his account. In this thought the Lincoln Telephone & Telegraph Co., Lincoln, Neb., has found the basic theme for a new series of advertisements, captioned "Introducing Your Public Servants."

Very rarely does the average person consider the telephone company as an organization of individuals, united in the common task of furnishing telephone service. He sees but one person, and that is the one whom he meets at the counter. Upon this employe's shoulders all responsibility rests; he *is* the telephone company.

Mr. Average Subscriber is very often a little hesitant in his dealings with this representative, or he may be slightly challenging in his attitude, for the employe is a stranger and may take advantage of him. As he comes to recognize the man or the girl behind the counter, his attitude changes to a spirit of friendliness. For acquaintance, slight though it may be, induces cordiality. There's a world of satisfaction in being able to say: "Why, yes, I know Miss Lewis. She is the cashier at the telephone company to whom I always pay my bills."

Each advertisement of this series actually introduces one or two of these "face-to-face" employes, who constantly meet the public. Each advertisement strikes the same note—personal interest. The individuality of the employe is emphasized, and yet his personality is linked with that of the telephone company. The advertisement tries to make the subscriber feel acquainted with the employe so that he will recognize him when he meets him in person; so that he will realize that the employes are personally interested in him and his needs.

**Miss Leona Ahlman Tells How the Element of Personal Interest Is Injected Into the Series of Advertisements of the Lincoln Telephone & Telegraph Co., Lincoln, Nebr.**

The "Introducing Your Public Servants" advertisements have been used in Lincoln papers for the past three months very successfully. The first introduced the chief cashier of the Lincoln business office. Like the rest, the duties in connection with her work were mentioned, and the young lady was quoted in regard to her ideals of service. Very frankly we recognized that she is the telephone company as far as the public is concerned.

Another of the series invited suggestions for window displays for the young man who is in charge of window displays; another introduced the clerical and stenographic force, and in the concluding paragraph reminded the public that much of the time of these employes is spent in locating proper accounts to be credited when checks are carelessly mailed in without stubs.

An especially interesting advertisement pictured the 50 boys who delivered the new telephone directories. The advertisement dedicated to the "guardians of the directory"—the girls who supervise it from beginning to end—was closely related to it. Another showed a construction scene with a crew at work, and a timely bit of copy this to represent the men who repaired the damage of the disastrous April snow storm.

One of the larger advertisements was

INTRODUCING YOUR PUBLIC SERVANTS
Mr. A. B. Waters
Local Business Office
Lincoln Telephone & Telegraph Company
[Introducing Your Public Servants]
Telephone Directory Delivery Boys
Lincoln Telephone & Telegraph Co
INTRODUCING YOUR PUBLIC SERVANTS
Presenting Miss Elberta Hudson
Teller, Lincoln Business Office
Lincoln Telephone & Telegraph Company

**Three of the Advertisements Used in the Series "Introducing Your Public Servants" of the Lincoln Telephone & Telegraph Co.**

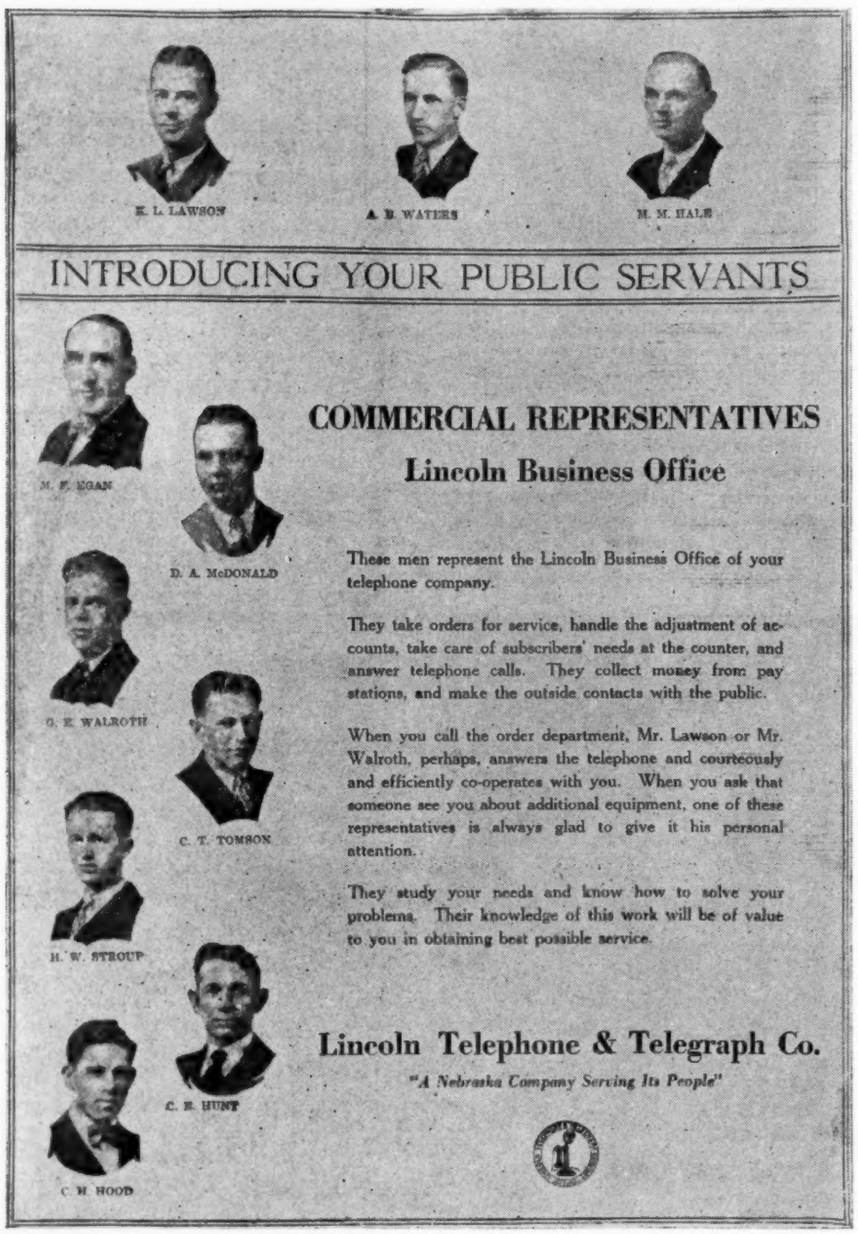
headlined "Commercial Representatives—Lincoln Business Office," and featured the ten young fellows who are employed in the office. That these men are anxious to give their personal attention to the customers' needs is stressed in this advertisement.

This series follows close on the heels of a campaign "Behind Your Telephone," which is part of the program to acquaint the public with the institution and equipment behind the service. These two series are closely allied in the common thought that the public should be better acquainted with the organization which furnishes its communication facilities.

The pictures have told the important part of the story, of course. The old Chinese proverb, "One picture is worth ten thousand words," is again proved true in this advertising. Actual pictures are unusual in newspaper advertisements, and for this reason have instantly attracted attention. The spirit of the copy and the slogan are also factors which play no small part in the success of the series.

As with most good-will advertising, it is hard to point to definite results. Sufficient to say that the advertisements have created much comment among Lincoln subscribers. Many times people walk up to the counter for service, and say to an employe, "Didn't you have your picture in the telephone advertisement yescterday? I thought I recognized you. Miss Lewis, I believe?" In the face of such comment, one cannot doubt the effectiveness of the series.

A background for their sales efforts is established for the employes in this preliminary acquaintance. Although it is true that no one advertisement may go the whole distance in creating the feeling of personal acquaintance, yet with the assistance of the folks themselves who are following up the advantage given them, the series cannot help but accomplish much for the Lincoln Telephone & Telegraph Co.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A. B. WATERS
M. M. HALE
INTRODUCING YOUR PUBLIC SERVANTS
M. F. EGAN
D. A. McDONALD
O. E. WALROTH
C. T. TOMSON
H. W. STROUP
C. B. HUNT
C. H. HOOD
COMMERCIAL REPRESENTATIVES
Lincoln Business Office
These men represent the Lincoln Business Office of your telephone company.
They take orders for service, handle the adjustment of accounts, take care of subscribers' needs at the counter, and answer telephone calls. They collect money from pay stations, and make the outside contacts with the public.
When you call the order department, Mr. Lawson or Mr. Walroth, perhaps, answers the telephone and courteously and efficiently co-operates with you. When you ask that someone see you about additional equipment, one of these representatives is always glad to give it his personal attention.
They study your needs and know how to solve your problems. Their knowledge of this work will be of value to you in obtaining best possible service.
Lincoln Telephone & Telegraph Co.
"A Nebraska Company Serving Its People"

**One of the Advertisements in the Series of "Introducing Your Public Servants" Featuring the Ten Young Men Employed in the Offices of the Lincoln Telephone & Telegraph Co., Lincoln, Nebr.**

## General Offices of Central Cities Telephone Co. at Elkhart, Ind.

Transfer of the general offices of the Central Cities Telephone Co. from Newton, Iowa, to Elkhart, Ind., and of Charles R. Hurmence, vice-president and general manager, and N. E. Swanson, secretary and treasurer, to the same city was announced last month at the headquarters of the Iowa State Telephone Co. in Newton. The transfer, however, has no effect on the commercial headquarters of the organization, which will remain in Newton.

Because of the acquisition of a number of new properties in Indiana and the proposed addition of still others, it has been necessary to transfer the general headquarters to the more central location, Mr. Swanson said.

The Central Telephone Co. now controls 44 exchanges in Iowa, Illinois and Indiana. The Central Cities company controls 39 of the 44 exchanges, and the Indiana Central company controls the other five.

In the Central Cities group are the Iowa State Telephone Co. of which Newton is a part; the Fairfield Telephone Co. of Fairfield, Iowa; and the Corn Belt Telephone Co., of Bloomington, Ill., and the Lincoln Telephone Co., Lincoln, Ill. The Indiana Central Telephone Co. is made up of the Home Telephone Co. of Elkhart, Ind., and the Fayette Telephone Co. of Connersville, Ind.

The divisional managership of the Iowa State Telephone Co. has been placed with Fred G. Moore, who has been at Connersville, Ind., for the past nine months. Mr. Moore's headquarters will be in Newton.

H. H. Jebens, recently appointed commercial manager, will retain his headquarters in the new building in Newton.

## District Conferences Scheduled for Southern Minnesota.

The Minnesota Telephone Association is preparing for a series of district conferences to be held in southern Minnesota this month.

The conferences are scheduled as follows: Wabasha, Tuesday, July 10; Lanesboro, Wednesday, July 11; Hollandale, Thursday, July 12; St. Peter, Friday, July 13; Fairmont, Tuesday, July 17; Slayton, Wednesday, July 18; Granite Falls, Thursday, July 19, and Glencoe, Friday, July 20.

## Henry A. Barnhart Reelected Indiana Association President.

The directors of the Indiana Telephone Association at meeting held at Lake Wawasee, June 21, elected these officers:

Henry A. Barnhart, Rochester, president; W. L. Shoots, Goshen, vice-president; H. L. Beck, Indianapolis, secretary-treasurer.

# Modern Method of Communication

## Need of Communication Felt in Early Days of World's History—Each New Method of Communication Has Resulted in Progress of Human Affairs—Address "The Message" Given at Conventions of Texas and Kansas Associations

By Miss Anne Barnes,

*Traveling Chief Operator, Iowa Independent Telephone Association, Des Moines, Iowa*

One of the most beautiful stories of a message in the world's history is that of the returning of the dove to the ark, bearing in its mouth a branch of fresh olive leaves.

Once before, this little dove was sent out, and had returned looking so exhausted that Noah, realizing it had found no place "for the sole of its feet," during all of those wearisome days of fruitless searching, reached forth and drew the tired little creature into the ark. Likely, there were those present who looked at it harshly so that it shrank in fear away from them. And Noah protected it.

In the very early history of the world, man saw the need of contact with those living at a distance. As nations began to expand, it became more necessary that messages be sent as quickly as possible. Slow communication it was, when we consider their methods of getting messages through.

The lack of sufficient contacts could have but one result—indifference, jealously, suspicion, war. Before this old universe had fairly had a good start, nations began to war on one another.

As wars went on, the need of communication became more and more urgent. It occurred to some of the great monarchs, as their domains extended, to establish relays of couriers—Greeks and Romans, each courier to run the length of his own route, then shout the message to the next runner.

An ancient Persian king ordered that messages be shouted from sentinel-to-sentinel within hearing of one another. I wonder if he followed the procedure of the Greeks and Romans until, perhaps, some runner forgot the message while he was en route toward the next runner? This sentinel-to-sentinel idea must have required a great many sentinels, and they must have had good loud voices, maybe, like the voices of some of our pioneer operators. But in any case, what chance for error, although the sentinels were probably punished by losing their heads whenever a message failed to go through. The pioneer operators often lost their heads, too, but not permanently.

The records of Caesar show that news of the massacre of the Romans at Orleans was sent in this way to a point a distance of 150 miles, by evening of the same day. At this rate of speed, if the Caesars could have lived longer and thought harder, they might have broken some of our records.

What difficulties must have beset King Agamemnon as he stood at the head of his armies before the walls of Troy. What messages he must have desired to send to his native kingdom in Greece during the process of the siege. How eagerly those at home must have waited for news of the great war. What long waits for the couriers to bring the messages through.

**"Every Advancement Toward Better Methods of Communication That Mankind Has Thus Far Made," Says Miss Barnes, "Has Resulted in Greater Progress and Betterment of Human Affairs."**

It has been said that "Necessity is the mother of invention," and because of this necessity for greater dispatch in getting messages through, the simplest method of the ages came into use—beacon lights.

I like to imagine some soldier, not an officer, but a private, in the army of King Agamemnon, sitting with his companions around the campfire at night and telling how he used to let a boy pal know he was coming out to skate by setting a light in the window, and perhaps, ending his story with this question, "Why don't these here guys put beacon lights on the tops of those high mountains yonder when they want to tell anything to anybody? It would be much quicker than sending out couriers."

But, anyway, the idea of using beacon lights got to the head of the army, for most worthwhile ideas do travel up from the ranks, and the king ordered that beacon lights be laid on the tops of Mt. Athos, Mt. Ida, Mt. Athaeran, and other intervening high points. Watchers were placed beside these unlighted bonfires, with faces turned toward Troy. When Troy fell, the first fire was kindled, and soon bonfire after bonfire sprang into flame all along the route toward Greece. Thus the message of victory went through.

Crude and ineffectual as these ancient methods of communication seem to us, we must remember that our methods are going to seem mighty crude and comical to people a few hundred years hence.

Perhaps, too, if we were told now about some of the future possibilities of communication, we might be as skeptical as a young darkey boy down in Louisiana was, when he saw men stringing a telephone wire for the first time.

"What is that for?" the boy asked.

"For people to talk through," came the answer.

"How can words run along a wire?" queried the boy skeptically.

"Listen, boy," said one. "If your dog's tail was long enough to reach from here to Africa, and you pinched his tail here, wouldn't he howl in Africa?"

Every advancement toward better methods of communication that mankind has thus far made has resulted in greater progress and betterment of human affairs.

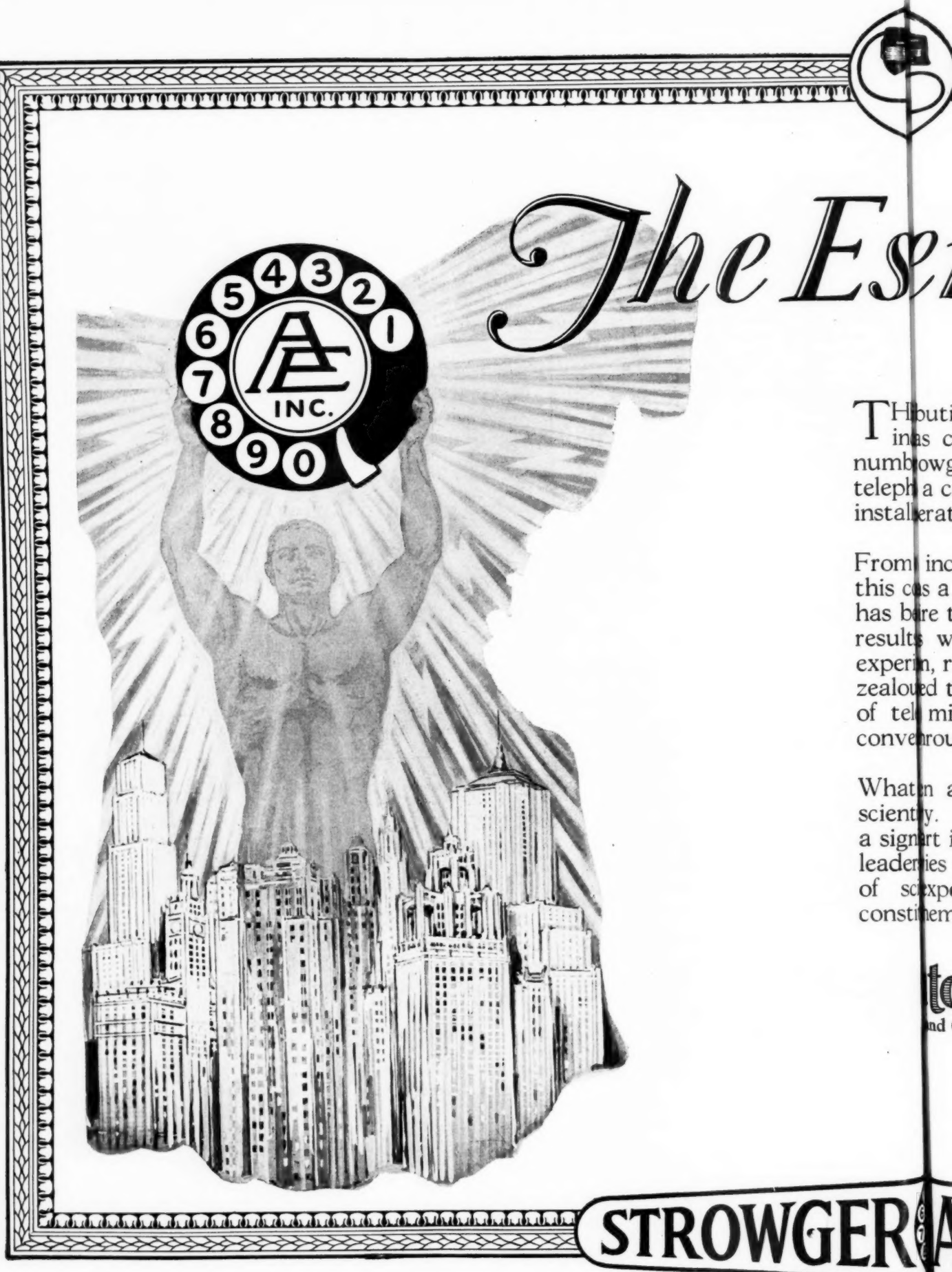
And now, let us softly and respectfully close the door between us and those old battle ax kings. They did their best, although I do believe if they had developed what was in the heads of their subjects, they would not have needed to cut off so many heads that failed in emergencies, because their owners carried them around most of the time as excess baggage.

As I look over this group today, the majority of whom are probably chief operators, or operators in charge, I am wondering what each one of you is doing towards improving the service *you* render to the public through your operators' heads, hearts, and hands.

Did you ever think of your work in that way—the service you render to the publice through your operators' heads, hearts and hands?

Question: If one operator and yourself, out of touch with each other equals one poor contact between you, how many poor contacts are there likely to be between that operator and the public?

Answer: If you have one poor contact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dermies with it the responsibility to continue those policies
sc experimentation and engineering development, which
stthemselves the very essence of service.

**tomatic Electric Inc.**

**nd General Offices: 1033 W. Van Buren St., Chicago, U. S. A.**

***Sales and Service Offices in All Principal Cities***

EXPORT DISTRIBUTORS

***For Australasia*** **-- Automatic Telephones, Ltd.**
***Elsewhere*** **-- Automatic Electric Company, Ltd.**

R AUTOMATIC

between yourself and one operator, you can expect to find many poor contacts between that operator and the public.

Choked channels are disease breeders. Poor employe contacts are disorganization breeders. What should you do; get rid of the operator, or the poor contact?

Let us first consider the operator, and then the cause of the poor contact. We will begin at the beginning of her career with you, when she applied to you for work.

If you were the one who interviewed her and then had her write out an application, did she bid fair to be a good investment for your company? Would you have risked your own money in her training? Or did you accept her application and train her as a temporary fill-in, knowing at the time that you did not intend to keep her permanently? If you did accept her in the latter way, were you making a wise investment for your company? Would you have been willing to have invested your own money in her training, for only a short time?

Would you invest $50 or $100 of your money for a coat that you did not particularly desire, knowing that it would not be of much use to you? Perhaps you are not the one who employed her, but, nevertheless, she is either a good investment or a liability for your company. If she is a liability, no matter who employed her, she is *your* problem.

Now what should you do with an operator who is a poor investment and a problem? What do you do with your calculagraph when it begins to be unsatisfactory? Do you hurl it out of the window and demand a new one? No, you would not treat a calculagraph that way. They cost too much money.

Neither would you hurl an unsatisfactory operator out of the window. But do you coach her and help her to be as good an operator as is possible? Perhaps she is timid and takes hold slowly but has the makings of a good operator if it were not for her handicap of backwardness.

Or do you say, "I'm not going to bother with her. Life is too short. There are plenty of other girls," and then kick her out of the operating room, and start training another student?

"Oh," you say, "What do you think I am?"

Well, my friends, what does this girl tell her folks and others when they ask her why she is not working? She probably says, "Oh, I got kicked out by the chief operator after she gave me every encouragement and training. I thought I was doing so well."

Calculagraphs cost money. So does a student's training. When your company pays for the training of two students and gets only one operator out of the deal, just so much money has gone to waste.

Now I am going to ask you seven questions, and will you check yourselves up while I do so?

1.—If you have an operator in your force who is not measuring up to service requirements, do you try to help her by giving her helpful criticism? Or do you just let her go on, a misfit in the organization until she gets discouraged or insubordinate, so that she either resigns or you are obliged to let her go?

2.—Do you like some of your operators and dislike others? Do you dislike Hetty Stone?

3.—In your contacts with operators, are you friendly or cold?

4.—Are you irritable or patient in your contacts with operators?

5.—Do you nag? By nagging, I mean harping away on some old offense which you have never had backbone enough to get rid of for once and all? For example: "Now girls, you just can't sit and visit and do your work well. How often must I tell you this?"

6.—Do you get excited and lose your poise before operators?

7.—Do you treat all of your operators impartially?

I think if you are weak in any of these seven points you will do well to get yourself in hand before you attempt to solve the problem you may have with any operator, because the secret of your success as a chief operator will depend upon your ability to direct your operators in such a way that the work will seem attractive to them and they will want to do it well, and—

The courage and faith your task calls for each day you live,
The prejudice, doubt, that you overthrow,
The sympathy that you give—
God only can measure them back to you
Who have opened the door so the light shines through.

—Cola L. Fountain,
In "The Lamplighter."

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## Combining Radio and Cables; Advocates That America Follow.

A merger of the Radio Corp. of America with the International Telephone & Telegraph Corp. is not possible at present, said David Sarnoff, vice-president of the Radio corporation, on his return from an eight weeks' trip abroad. Reports of a pending merger of the two concerns have been current in New York City's financial district.

"The recent law enacted setting up the radio regulatory commission is generally interpreted as prohibiting radio and cable companies from merging," Mr. Sarnoff said, "However, if America is to retain her advantage in the radio field, mergers will have to be brought about."

While abroad Mr. Sarnoff attended the meeting in Berlin of the consortium of radio-communication interests representing America, England, France and Germany.

He alluded to the radio act of 1927 which prohibits radio and cable companies from merging, the only stumbling block in the way of an immediate combination linking the communications branch of the Radio corporation with the International Telephone & Telegraph system or the Western Union system.

Mr. Sarnoff discussed developments abroad as regards cable and radio companies.

"The best statesmanship in Europe," he said, "is now encouraging the combination of the old and the new systems of international communications.

"In England, the recently announced merger of the Marconi Co. and the Eastern Cable Co. seems fairly certain to be consummated within the next three months. The new company to be formed will take over the operation of the Eastern cables and the Marconi wireless stations as well as the cables and wireless stations communicating with the British colonies now being operated by the British post office.

In France, a committee of experts has been appointed by the government to study the subject and to submit a plan at an early date for consolidating the French cable and wireless systems into a single company to be owned and operated by private capital, but with government encouragement.

In Italy, as a result of the interest taken in the subject by Mussolini, a consolidation of Italian cable and wireless interests has already been effected.

In Germany, the government has brought about a working arrangement between cable and wireless interests by which both systems are privately owned and operated, but under government protection."

"The result of all these arrangements and combinations abroad is bound to be a serious challenge to the leadership of the United States," Mr. Sarnoff declared. "To meet long-sighted statesmanship abroad, we will require something more than restrictive legislation at home if our national, commercial and social interests in the field of world communications are to be suitably safeguarded and remain independent of foreign control or domination. But I believe the course of events will soon make it clear to our legislators in which direction our own national interests lie."

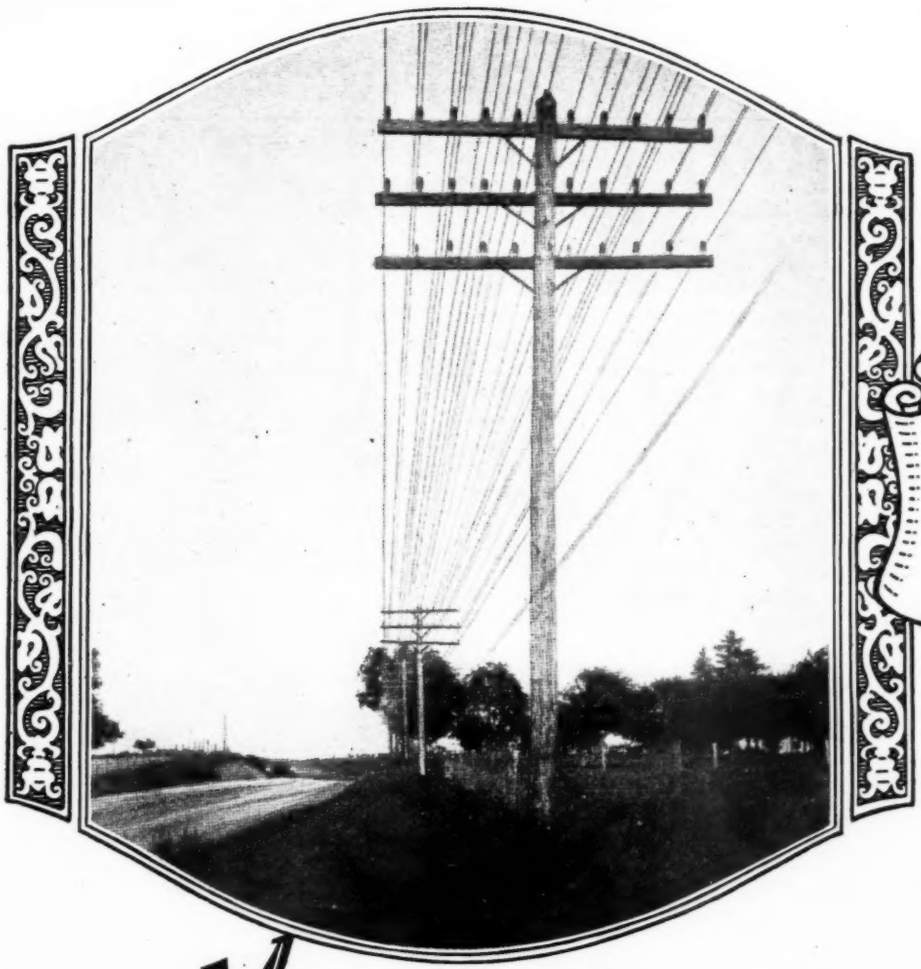
---

## Short Girls Not Wanted in Exchange at Springfield, Mo.

Unless applicants for positions as operators in the exchange of the Southwestern Bell Telephone Co., Springfield, Mo., are more than 5 ft. 5 inches tall, they cannot be accepted, H. B. Jordan, local manager of the company, has ruled.

With the addition of a new group of lines on the switchboard, the top of the board is beyond the easy reach of the shorter girls.

Small girls already on the company payroll will be retained, but only tall girls need apply from now on, is the edict.



*"P & H Process" Poles. in ultimate 30-wire line of Pike County Telephone Co., Pittsfield, Ill.*

p&H

# More Uniform Saturation in "P&H Process" Poles

DEEPER penetration of the preservative, a more uniform penetration and a greater amount of free oil . . . . these are some of the reasons for the greater dependability and longer life of "P & H Process" Poles.

These results are obtained by the exclusive "P & H" method with its six distinctive features, two of which are patented. All of which means lower per annum cost lines.

"P & H" Service also is exceptional. Prompt shipment on Northern White Cedar or Western Red Cedar poles.

*"Still in the Lead"*

## PAGE AND HILL CO.

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New York, N. Y., 50 Church St. Chicago, Ill., 19 So. La Salle St. Dayton, Ohio, 854 Reibold Bldg.
Kansas City, Mo., 517 Pioneer Trust Bldg. Omaha, Neb., 734 Electric Bldg.

# Here and There in Telephone Work

### Roaming Spirit of Missouri River Channel Big Expense.

Telephone companies are looking askance over the proposal to build a total of seven bridges over the Missouri River between Nebraska and Iowa, which may simmer down to no more than four. Crossing the Missouri River has always been a problem for the Northwestern Bell Telephone Co., which owns practically all of these lines. As the two Dakotas are also in Northwestern territory, it is necessarily a big problem. In North Dakota, where the river's course is irregular, the company has between 400 and 500 miles and in South Dakota even more.

The chief trouble is caused by the shiftiness of the stream. This carries a vast amount of silt and sand, and at bends and curves these are deposited in reefs so that nature and the weather aiding, they grow strong enough to deflect the stream, sometimes cutting new channels some distance from the old ones.

Much of the land through which it passes is flat, and it is through this murk that the pole lines must go when they approach the bridge. Putting the poles in cement and bracing and guying them helps a lot, but the water frequently washes away the underpinning of the pole, and out it goes. At some of the points in the Dakotas, where no bridges exist, the company must make a river crossing of its own in order to give direct line service, and this calls for costly fixture construction that does not always remain in place.

At Sioux City, Iowa, a number of long distance lines cross the river. These have been carried on fixtures placed on the bridge, but the river has damaged the connecting pole lines through the bottom lands so often that plans have been adopted for putting in a submarine cable connecting the Iowa City with the Nebraska one of the same name. If this works well, it will probably be adopted at other crossing points.

Long distance lines also cross the river between Omaha and Council Bluffs and at Nebraska City and Plattsmouth, which match small towns on the Iowa side. In South Dakota bridge crossings are maintained at three points and in North Dakota the same number. This work is unusually costly, and a heavy maintenance cost attaches all because of the roaming spirit of the river.

### Counterless Office of Chesapeake Bell in Baltimore, Md.

The newest idea in telephone business offices—the counterless office—has just been adopted by the Chesapeake & Potomac Telephone Co. of Baltimore City. The new office, which is the principal downtown business office in Baltimore, Md., is located on the first floor of the No. 5 Light street telephone building. It is totally unlike the ordinary type of business office used by many utilities and other large establishments in that the counter which usually appears in such an office has been entirely eliminated.

In its place are arranged individual desks for the use of patrons who have occasion to transact business with the telephone company. At each desk there sits a representative of the company with one or more chairs arranged nearby for the use of the patrons, so that those having to transact business with the company's representatives are able to be seated during the interview. Also, it provides greater comfort to the company's employes who are otherwise required to stand during the greater portion of the day.

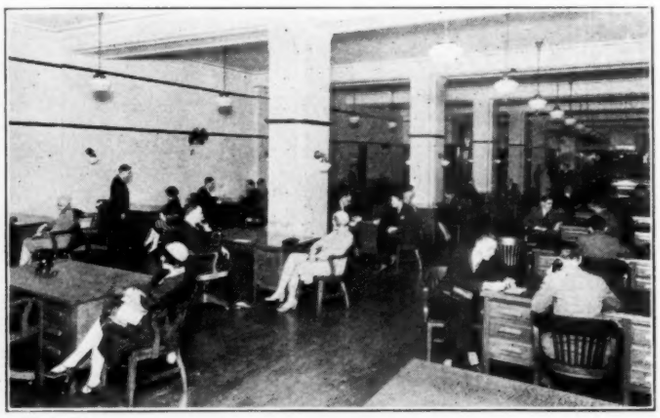
In the front of the office a comfortable space containing tables, chairs and settees for the use of the patrons who may have occasion to wait has been provided.

The whole purpose of the new "counterless" arrangement is to give a more personal service to patrons. Instead of walking up to the counter and awaiting one's turn as heretofore, patrons are now greeted by a floor supervisor who directs them to the proper employe. Seated in a chair by the side of the desk of the employe, the customer then transacts his business in an atmosphere of privacy and with a distinct feeling that individual and personal treatment is being given him.

A new entrance has been made so that the public may reach the business office or the public telephones, directly from the street instead of through a lobby as heretofore.

In order to make this new office available, the Chesapeake & Potomac company has moved from the first floor all employes engaged in the work of maintaining the records of customers' services so that the first floor space is now entirely given to the comfort of the public and the representatives of the company who attend the business transactions between the company and the public.

Baltimore and the nearby suburban area are now served by more than 165,000 telephones which involve more than 100,000 subscribers' accounts. The company's records show that about 50,000 persons visit its business office during the period of a month, and, in addition, there are about 40,000 telephone calls made.

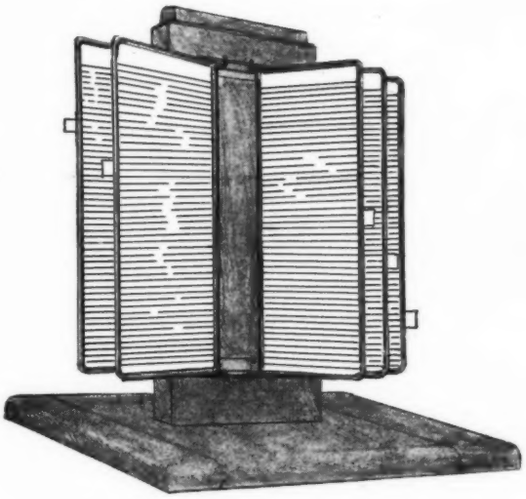


**"The Old Order Giveth Way to the New"—Baltimore Public and Record Office of Chesapeake & Potomac Telephone Co.—"Before and After," May, 1928. Same Space Occupied With Counter and Counterless Office.**

### New York Electrical Society Ends Another Successful Year.

That the work of the New York Electrical Society in popularizing electrical science in New York City for the past 47 years is to be continued, and its scope of activities extended, was decided at the annual meeting of the society held on June 12 in New York City.

In a review of the work of the society during the past year, President E. E. Free stated that approximately 5,000 persons had



Desk Stand Equipment for Central Information Bureau Records

| *Outfit Cat. No.* | *No. of Stations* |
|---|---|
| 1 | 1000 |
| 2 | 1000 |
| 3 | 1500 |
| 4 | 2000 |
| 5 | 2500 |

# Modern Visible Record Equipment

## *for Telephone and Telegraph Companies*

No. B. 8516 for Ledger Records. Contains 16 slides with 864 card holding pockets. Height 16¼", Width 10⅝", Depth 24".

TELEPHONE officials now realize that with visible equipment record keeping is simpler, more efficient and less expensive. For this reason visible record equipment has come into wider and wider use in the more modern and progressive telephone companies.

Here are illustrated three variations of this type of equipment. No matter what record is necessary there is a form for it. Tell us what records you are interested in and we will send sample forms and assist in devising forms for your particular needs.

No. B. 85-8 for Stock Records. Height 9⅛", Width 10⅝", Capacity of 432 Cards. Designed for systems employing light weight cards.

Telephone and Telegraph Sales Department

## Remington Rand Business Service *Inc.*

451 Broadway New York City

attended the seven meetings held by the Society. The many inquiries received from industries, from the press, and from the public, and the national publicity given the society's activities, indicate that it continues to be recognized as an authoritative source of information regarding electrical science.

The New York Electrical Society is the oldest electrical society in the United States, perhaps in the world, having been organized February 23, 1881. The principal object of the society is the presentation to the general public, as well as to trained engineers, of the latest advances in electrical science. The membership of the society, President Free reported, is over 1,300 individual members and nearly 50 sustaining members.

The officers elected for 1928-1929 are: President, E. E. Dorting, lighting engineer, Interborough Rapid Transit Co. Vice-President, A. K. Baylor, executive department, General Electric Co.; E. B. Meginniss, auditor, New York Telephone Co.; H. H. Sheldon, professor of physics, Washington Square College, N. Y. U.; treasurer, E. B. Meginnis, auditor, New York Telephone Co. R. B. Grove, secretary of The United Electric Light & Power Co.; H. Rentschler, director of research, Westinghouse Lamp Co. and W. T. Teague, vice-president, Western Electric Co., will remain as vice-presidents. H. E. Farrer, 29 West 39th street, New York, was re-elected secretary.

## Practical Notes for Maintenance Students; Electromagnetism.

By John A. Bracken

There is an intimate connection between magnetism and electricity. This connection is evident from the fact that a wire carrying an electric current is surrounded by a field of magnetic force in the form of circles or rings in planes at right angles to the wire.

The magnetic effect produced around a conductor through which electricity is flowing is called electromagnetism to distinguish it from magnetism of a natural (lodestone) magnet and from permanent steel magnets.

The fact that an electric current sets up magnetic lines of force around a conductor can be demonstrated by placing a magnetic compass needle near the conductor when the current is passing. The magnetic field around the conductor causes the compass needle to turn; that is, the needle is deflected.

The intensity of the magnetic field set up by the electric current depends not only upon the strength of the current but also upon the substance that fills the space around the current and in which the magnetic lines of force must be formed. This substance in which the magnetic lines of force are developed is considered as forming a magnetic circuit akin to an electric circuit and offering a greater or less opposition, depending upon the nature and dimensions of the substances composing it, to the development of magnetic lines of force, just as an electric circuit offers more or less resistance to the flow of electricity.

The opposition offered by a magnetic circuit to the production in it of magnetic lines of force is called magnetic reluctance, and is compared to electrical resistance. The reluctance of any part of a magnetic circuit, like resistance of any part of an electrical circuit, is directly as its length, and inversely as its cross section. It is also proportional to the specific reluctance of the substance.

Specific reluctance, unlike the specific resistance of substances forming electrical conductors, often varies with the amount of magnetic flux; that is, the streamings that issue from and return to the poles of a magnet, or in other words the total number of lines of magnetic force in any magnetic field.

The cause of magnetic flux is called magnetomotive force. It corresponds to electromotive force in an electric circuit, and the flux or number of lines of force to electric current.

As the total electromotive force of an electric circuit is measured by the work performed in carrying a unit charge around the electric circuit, so, too, the magnetomotive force of a magnetic circuit is measured by the work it does in carrying a unit magnet pole around the magnetic circuit.

"Magnetic permeability" is the term used to indicate the conducting or carrying power in a magnetic circuit, and may be compared to conductivity in an electric circuit. There is, however, an important difference between magnetic permeability and electrical conductivity. The latter in the case of any particular conductor does not vary—that is, so long as the temperature remains constant—whereas, the magnetic permeability varies with the magnetizing force.

### SALESMEN.

By Buck.

How do you treat the salesmen when they come to call on you? Do you forget that they are men? Or just what do you do?

And when they tell you of their wire, their switchboards, poles or coils, do you get sore and vent your ire, as though you're full o' boils, and treat them just as if they were a bunch o' pirates bold? Or do you get so frigid, sir, you freeze 'em icy cold? Or do you treat them civilly and talk up like a man? On being civil, certainly, there's not a single ban.

So many buyers act as though the salesmen were a pest and of all purchasers the foe who wants us to invest in rotten stuff they have to sell, that isn't worth a hang, who talks you to a pulpy jell, to use a little slang.

Oh, why is it that many folks on salesmen are so hard, as if they're eggs with rotten yolks, galoots who should be tarred, who only spread a lot o' salve that's full o' gooey slime?

At best, by Gum! the salesmen have a pretty durned hard time.

## The Standards Yearbook, 1928, Now Ready for Distribution.

The Standards Yearbook for 1928, prepared by the National Bureau of Standards, outlines the activities and accomplishments of not only the bureaus and agencies of the federal government, including the National Bureau of Standards, but also those of state and municipalities.

It also gives a résumé of the standardization work of scientific and technical societies and trade associations. It stresses the international aspects and activities of standardization and also gives charts showing steps through which the national standards are made available to the ultimate users.

To manufacturers, industrial experts, engineers and purchasing agents, both governmental and general; to all officers and agencies concerned with standardization, the Standards Yearbook will be most valuable. It will inform the manufacturer of the current standardization movements affecting his industry. It will inform purchasing agents of new standard specifications and will inform the scientist engaged in research as to current research projects which may lead to standardization.

To the average reader it will prove a mine of information on the present status and trend of standardization in all fields of industry, commerce, science, and government, with references to sources of further information.

Copies of the Standards Yearbook, 1928, may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., by sending with the order a remittance either in the form of post office money order, express money order, New York draft, or cash—at the sender's risk. Price to foreign countries (other than Mexico and Canada), $1.20.

# What is due the public

*An Advertisement of the*
*American Telephone and Telegraph Company*

THE Bell System recognizes the public requirement for a constantly extending and improving telephone service. Last year 4 million telephones were either put in or moved. The number of local calls not completed on the first attempt was reduced by 5 per cent. The average time for handling toll and long distance calls was reduced from 2 minutes to 1½ minutes.

During the last 5 years the Bell System spent $1,800,000,000 on additions, and improvements of its plant.

There is equally a public requirement for safety of principal and earnings of the stock of the American Telephone and Telegraph Company — the parent company of the Bell System. Since its incorporation in 1885 it has never missed paying a regular dividend to its stockholders, who now number more than 420,000.

The very nature of the telephone business necessitates a single interconnected system. The American Telephone and Telegraph Company accepts its responsibility for a nation-wide telephone service as a public trust. It is fundamental in the policy of the company that all earnings after regular dividends and a surplus for financial security be used to give more and better service to the public.

# With the Manufacturers and Jobbers

## Albert Parlett, Jr., Joins the Kellogg Company.

The Kellogg Switchboard & Supply Co. announces the addition to its sales department of Albert Parlett, Jr.

Mr. Parlett has gained a thorough knowledge of the telephone industry

**Albert Partlett, Jr., for Many Years with Company at Bristol, Tenn., Has Joined Sales Department of Kellogg Switchboard & Supply Co.**

through years of work in the operating field. He was literally born into the Independent telephone industry. His father founded the first Independent telephone exchange in his home town of Bristol, Tenn. With this exchange as a nucleus, Mr. Parlett, Sr., built around it a most progressive and efficient telephone organization.

Upon graduating from Washington and Lee University in 1912, Mr. Parlett, Jr., became actively engaged in the operating field with the Bristol Telephone Co. In 1915 he went to Chicago to make an intensive study of telephone manufacturing methods. When he returned to Bristol late in 1915, he assumed the duties of assistant secretary and engineer for the Bristol Telephone Co.

In 1921 the Bell properties consolidated with the Bristol Telephone Co. and the Inter-Mountain Telephone Co. was formed. Mr. Parlett, Jr., was elected secretary and treasurer and held that position until his retirement from the telephone industry in 1925.

While resting at Spruce Pine, N. C., he decided to open an electrical store which prospered under his able guidance.

Mr. Parlett's heritage and experience, coupled with an unlimited amount of engineering ability and aggressiveness, will be of great assistance to the Kellogg company in better serving its customers.

## A. T. M. Products at the P. F. B. A. Conference, England.

In fire fighting, as in most other walks of life, electricity plays a leading part; first and foremost in giving the alarm following an outbreak and enabling the fire brigade to save valuable seconds in coping with the menace.

At first sight, it would appear that there is little or no connection between automatic telephones and fire alarm apparatus, but as a matter of fact in precision manufacture, principle of operation, and reliability in service, the two are akin, a fact which amply explains the inclusion of Automatic Telephone Mfg. Co.'s products among the exhibits of fire appliances at the annual congress of the Professional Fire Brigades Association at Portsmouth, England, late last month.

As manufacturers of Beasley-Gamewell fire alarm equipment the Automatic Telephone Mfg. Co.'s principal exhibit comprises a range of positive non-interfering succession street fire alarm boxes, which safeguard every contingency, together with sector boxes, which fill the less exacting requirements of small towns, urban areas, etc.

Both types of box are designed for closed circuit working, the recognized best principle of fire alarm operation inasmuch as the circuits are constantly under current and self-recording in the event of a failure at any point in the most vulnerable portion of the plant, viz., the lines connecting the boxes with the recording apparatus at the fire station. In addition, the interests of the fire brigade staff are fully protected by the permanent record giving the exact time, date, and origin of all calls received, constituting invaluable and indisputable evidence in the event of casualties, fire loss claims, etc.

The various Beasley-Gamewell street boxes are connected to and demonstrated in conjunction with a central fire station switchboard of the storage battery type arranged for the control of a single loop, which, however, includes a number of street boxes, connected, as usual, in series.

The switchboard, of polished oak, mounts an enameled slate panel carrying the keys, switches, measuring instruments, etc., associated with the loop circuit. At the top of the switchboard is an opaque glass panel for the display of luminous signals indicating various conditions; e. g. broken or earthed line, etc. It is noteworthy that there is an entire absence of cords, plugs, or other temporary connections likely to cause trouble, the whole of the essential switching operations being effected by means of well-proved keys or switches.

The audible signals on the Beasley-Gamewell system are received on a substantial electro-mechanical gong of the "turtle" type, while the box codes, time and date of the call, etc., are recorded on a traveling paper tape, the codes by ¼-inch perforations in a one-inch tape, and the time and date in clear letters and figures impressed by a stamp.

The punching registers, clock and date stamp are accommodated in a polished oak

CLOSED & OPEN CIRCUIT FIRE ALARM APPARATUS FOR CODE SIGNALLING & TELEPHONE SYSTEMS
AUTOMATIC TELEPHONE MANUFACTURING Co. Ltd
Telephone, Telegraph & Signalling Engineers.
STROWGER WORKS. LIVERPOOL.
FIREMENS CALL BELL SYSTEMS. HOSPITAL & INSTITUTION FIRE ALARMS.

**Working Exhibit of Fire Alarm Equipment of Automatic Telephone Mfg. Co. at Annual Congress of the Professional Fire Brigades Association, Portsmouth, England.**

# TAKE TIME *to investigate!*

Instrument Costs—like all plant equipment—are properly determined on the *Annual Charge* basis. Take time to investigate their probable life, accurate service, up-keep and depreciation. By this comparative *and only accurate* method of arriving at true costs, "Westons" are the *lowest-price* instruments on the market despite their superior quality. And then, there is the free consultation with Weston engineers on your testing problems—a service which will help you reduce operating costs. As the highest authority in the field of electrical measurement every kind of testing problem has been presented to us. The most approved testing methods, resulting from this experience, we have now published in a complete and practical testing manual—yours for the asking. Again, take time to investigate—

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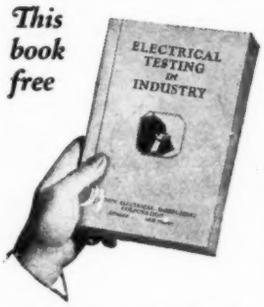


*Electrical Testing in Industry*

A valuable work for engineers in every field.

A complete and practical manual, fully illustrated, which shows how to make every required electrical test.—130 pages.

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# Make Yourself Expert in Telephone Practice

These five great telephone books give you the best and most complete idea of what the telephony expert must know.

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**Mitchell's**

## Principles and Practice of Telephony

These five books place thousands of practical facts at your command for instant use.

Beginning with a comprehensive survey of the basic principles involved, the author discusses such subjects as telephone apparatus, circuit elements and analysis, typical cord combinations, telephone power plant equipment, coil winding, the toll switchboard and toll equipment in the multiple office.

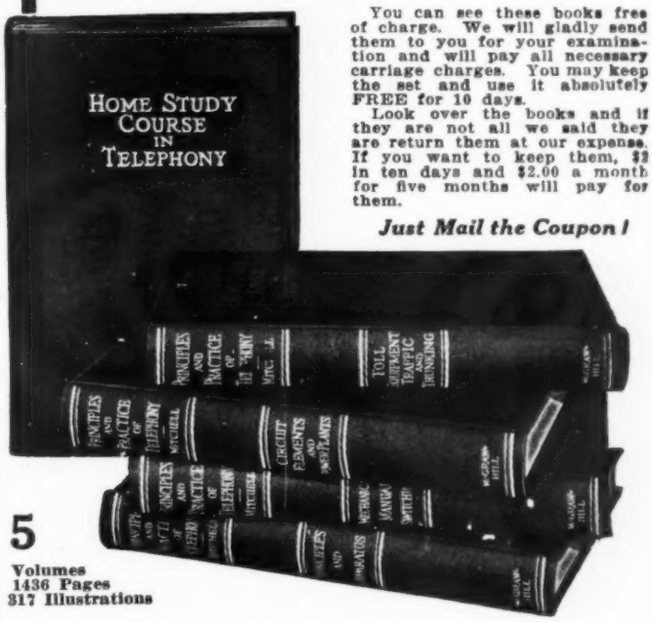
You learn about toll trunking, the nature and laws of telephone traffic, machine and automatic ringing, call distribution, trunk mechanical switching, mechanical-manual switching, etc.

All these subjects with scores of others, equally important, are treated in detail. Illustrations are used freely throughout the books, and a comprehensive index enables the reader to put his finger immediately on any desired fact.

To earn an expert's pay, you know that an expert's knowledge is necessary. With these books you get the combined experience of many telephone experts—down in black and white. with 317 illustrations to help you.

## *Examine this great set free*

Nothing we could say about the Home Study Course in Telephony could possibly be as convincing to you as an actual inspection of the books themselves.

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## FREE EXAMINATION COUPON

**McGraw-Hill Book Co., Inc.,**
**370 Seventh Ave., New York.**

Gentlemen:—Please send me MITCHELL'S PRINCIPLES AND PRACTICE OF TELEPHONY (shipping charges prepaid), for ten days' free examination. If satisfactory I will send $2.00 in ten days and $2 per month until $12.00 has been paid. If not wanted, I will write you for return shipping instructions. **(Please write plainly and fill in all lines.)**

Name .....

Home Address .....

City and State.....

Firm or Employer .....

Occupation .....

7-7-28

cabinet with glass-panelled top. In the event of a broken line or a short-circuited box, the signals are still recorded on an auxiliary register located in the same cabinet, the usual audible bell signals being sounded.

There is virtually no line casualty which can throw the Beasley-Gamewell closed-circuit system out of commission. Broken or earthed lines will not prevent signals reaching the fire station. Even that remote contingency, a short-circuited box, still retains its power of recording signals when operated, at the same time giving due warning of the existence of the fault.

This is an all-important and exclusive feature of Beasley-Gamewell street fire alarm boxes.

Both the positive non-interfering succession boxes and the sector boxes are operable on the breakage of a glass control panel and the pulling of a lever, but whereas the former has stored energy in a powerful spring wound by the fire brigade staff, and, once released, is capable of sending 15 repeat signals, and of challenging the line and cutting itself into circuit at the beginning of any series of four signals, the sector box requires the depression of its lever by the person sending the alarm to wind its mechanism, and then sends out four complete signals on release.

With the Beasley-Gamewell positive non-interfering succession box, simultaneous operation of two or more boxes on the same loop will not affect the issue and all signals, from whatever box, will reach the station without mutilation, a vital factor in large city networks.

For those fire chiefs who prefer the telephone method of communication between public and brigade, there is the A. T. M. telephone fire call box with associated fire station switchboard. Outwardly the street alarm box resembles a Beasley-Gamewell sector box, previously described, but a loud-speaking receiver, audible within a radius of 12 feet, and an associated microphone for the use of the person giving the alarm, replace the coding mechanism.

Breakage of the glass control panel causes the door of the box to open automatically, exposing both receiver and microphone, together with the necessary instructions in clear and unmistakable type.

In opening, the door of the box releases a spring switch which drops an indicator on the fire station switchboard. The fireman on duty immediately challenges the line and asks particulars as to the nature and location of the outbreak, his voice being clearly audible to the person at the box.

Another outstanding item of the A. T. M. exhibit was its automatic repeater for repeating signals received at the central fire station to outlying substations. Instead of the usual costly and complicated mechanism, this takes the form of a relay group and rotary line switch similar to those in every-day use at Strowger automatic telephone exchanges the world over, and equally simple and reliable in operation.

In addition to receiving and transmitting signals, the A. T. M. repeater also gives visual indication of the loop over which the call is being transmitted.

Finally the company exhibited its A. T. M. fireman's call bell system, the exhibit comprising a switch cabinet on which are mounted a series of keys corresponding with the members of the brigade and labeled accordingly. When a fire call comes through, the station attendant presses a master key and thereby rings the bells of all men where individual keys are in the "duty" position. The circuit is so arranged that any one bell can be rung at will, while a test key permits the simultaneous testing of all bells when required.

The whole of the A. T. M. company's exhibit was arranged for continuous demonstration as required throughout the congress, and attracted considerable attention and interest among those present.

An interesting descriptive leaflet, "Does It Need Fire to Enlighten?" is published by the fire alarm department, Automatic Telephone Mfg. Co., Ltd., Strowger Works, Liverpool, England, and will be sent on application.

## "The Old Order Passeth"—Automatic Supersedes Automatic.

By R. H. Carter.

"Progress in industry" is a very familiar phrase nowadays, but it is not always realized that this progress often means "scrapping" some product—almost regarded as a permanency—in favor of a new design embodying greater efficiency and other desirable features. The telephone industry affords many examples of this kind, among them being the adoption of automatic systems, and already the stage has been reached when early automatic systems are in their turn being superseded by modern automatic equipments.

Mention was recently made in Telephony of Edmonton, Canada, where an old three-wire automatic had been replaced by a present-day two-wire automatic. Another interesting example is that of Hereford, England, where an old "Lorimer" automatic system has been closed down and a new equipment of Siemens Brothers No. 16 type brought into use. Incidentally, it is a coincidence that Canada is also concerned in this case, for the old system was made and installed by the Canadian Machine Telephone Co.

The Lorimer equipment at Hereford, which was opened in 1913, possessed features totally different to modern step-by-step practice. For instance, instead of the present-day type of circular dial switch, the subscribers' telephones had four separate number levers which were set at the required figures by the caller.

This device had an advantage in that callers could see the actual number they had set up, and this was probably intended to prevent trouble being caused by mistakes on the caller's part, a trouble which appears to have been exaggerated in view of the ease and accuracy with which the present-day type of dial is used.

Other features of particular interest were that the switch-operating impulses were sent from the exchange and not from the telephone; also that during rush hours calls were "held" at the exchange equipment until a connecting circuit was available.

Criticism of these features is not intended and, indeed, would be just as unfair as it would be to criticize early efforts in either the manual switchboard design or any other machine. Rather are these pioneer automatic equipments deserving of all praise, for they have given good service up to their limitations, proving to responsible authorities that automatic telephony was not a theory, but an actual achievement of immense importance and that difficulties and failures which were freely prophesied were either imaginary or easily overcome.

The old automatic equipment at Hereford was not worn out, but had become unsuitable owing to the growth of the telephone area it served, and the authorities naturally decided to replace it by an up-to-date type of equipment which they have standardized.

It has been suggested that a section of the Lorimer equipment should be placed in the South Kensington Museum, London, where it would be a very interesting exhibit in company with many other famous mechanical inventions which are preserved in that building.

## Bierce Guy Wire Protector for Exposed Guy Wires.

In construction and maintenance work telephone company managers are always interested in devices which will strengthen and prolong the life of their lines.

A device of this type is the "Bierce" guy wire protector which it is said is of great utility wherever guy wires are exposed. The Bell system has endorsed it and is using it extensively, it is stated.

An interesting booklet describing the device and the reasons for its unusual value may be obtained by writing to the Specialty Device Co., Cincinnati, Ohio.

## Oliver's Line Hardware Representative in Rocky Mountains.

O. H. Davidson, president of the O. H. Davidson Equipment Co., 130 West 14th Avenue, Denver, Colo., has been appointed district manager in the Rocky Mountain territory by the Oliver Iron & Steel Corp. of Pittsburgh, Pa. Mr. Davidson will represent the pole line material and the bolt, nut, and rivet department of the Oliver corporation.

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# What the Commissions Are Doing

Up-to-the-Minute News Regarding the Activities of State and Interstate Commissions, Courts and City Councils in Matters Concerning Telephone Companies--Summary of Commission Orders and Schedule of Telephone Hearings

### Depreciation Hearing Before Interstate Commerce Commission.

On June 25, 26 and 27, the Interstate Commerce Commission held another hearing regarding telephone depreciation. G. K. Manson, chief engineer, New England Telephone & Telegraph Co., Boston, Mass., and Allerton F. Brooks, chief engineer, Southern New England Telephone Co., New Haven, Conn., Milo R. Maltby, representing the city of New York, and W. M. Hammond, chief accountant of the Illinois Commerce Commission, presented testimony relative to depreciation practices.

The commission, upon completion of the testimony of these witnesses, stated that it would hold a hearing in late September, at which time an opportunity would be given for the cross-examination of the witnesses. The United States Independent Telephone Association was represented by President F. B. MacKinnon and C. B. Randall, vice-president of the Tri-State Telephone & Telegraph Co., St. Paul, Minn.

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### South Central Company Buys 17 Alabama Companies.

The South Central Telephone Co., Inc., recently filed petitions with the Alabama Public Service Commission for approval of the sale to it of telephone systems in a number of Alabama towns in various parts of the state. There were 17 petitions filed affecting 18 towns. With the filing of these petitions the South Central Telephone Co. will have asked the commission for approval of the sale to it of 48 telephone systems in Alabama since the first of the year.

Recently, the commission granted petitions of the company for approval of sale to it of 15 telephone systems in Alabama. That was said at the time to be the largest single turnover in public utilities properties ever to take place in Alabama and was said to have represented a transaction of approximately $150,000.

The 17 petitions just filed with the commission seek approval of the sale to the South Central Telephone Co. of the following telephone systems by their owners.

Camden Telephone Co., by J. R. and Roy H. Liddell, owners; Blountsville Telephone Co., by Sam Cheek, owner; Canoe Telephone Co., by B. B. Gates, owner; Cherokee Telephone Co., by J. F. Harris, owner; Dozier Telephone Co., by Mrs. T. A. E. and J. Lee Milton, owners; Gantt Telephone Co., by J. F. Alsabrook, owner; Goshen Telephone Exchange, by E. R. Hightower, owner; Hodges Telephone Co., by W. D. Bailey, owner; Jones Mills Telephone Co., by H. F. Adams and Dr. J. F. Busby, owners; Heart of Baldwin Telephone & Telegraph Co., Loxley and Silverhill, by O. E. F. Winberg, owner; Luverne Telephone Co., by D. W. Eilend, W. C. Brasell and W. J. Brown, owners; Orrville Telephone Co., by H. E. Marshall, Sr., owner; Repton Telephone Co., by H. F. Adams, owner; Rockford Telephone Co., by Audie Cowart, owner; Rogersville Telephone Co., by M. L. Williams, owner; Vina Telephone Co., by E. L. Reed, owner; and Wedowee Telephone Co., by S. L. Brewer, owner. The petitions have been set for hearing by the Alabama Public Service Commission for July 17 at Montgomery.

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### Indiana Commission Reversed in So-Called Valparaiso Case.

In a decision rendered June 21 in the Lake County Circuit Court at Crown Point, Ind., Judge E. Miles Norton held that the Northwestern Indiana Telephone Co., of Valparaiso, has the right to sell and the Winona Telephone Co. and the Crown Point Telephone Co. the right to buy the capital stock and assets of the former company.

Judge Norton's opinion was given in the face of two refusals to sanction such a step on the part of the Indiana Public Service Commission which supported the contention of Valparaiso city authorities and the chamber of commerce that such a move would be against sound community and public interest.

Under the ruling, the Valparaiso and Kouts exchanges will be turned over to the Winona company with central headquarters in Plymouth. The Wheeler, Hobart and Chesterton plants will be taken over by the Crown Point company.

Appeal was taken to the Lake County Court by James P. Goodrich, former governor of Indiana and principal owner of the Winona company and by the Illinois Bell Telephone Co., owner of the Crown Point Telephone Co. The hearing was held by Judge E. Miles Norton under the utility commission appeal statute of 1927, which requires hearings to be in the nature of ex-parte proceedings without provision for legal representation on behalf of the commission.

According to the evidence it was disclosed that the Northwestern Indiana Telephone Co. had been purchased by the First Chicago Co. of Chicago, which had an agreement with the Illinois Bell Telephone Co. to the effect that the First Chicago Co. should purchase the stock and the Illinois Bell company would obtain a purchaser for the stock and save the First Chicago Co. from loss and assure its commission on the deal.

The testimony also showed there was no connection between the two companies other than the First Chicago Co. had placed a representative of the Bell company on the board of directors of the Northwestern Indiana company.

In his ruling reversing the public service commission, Judge Norton declared that the only question involved was whether the petitions of the petitioners should be granted, and not whether the sale of the stock to the First Chicago Co. be approved.

The first hearing on the sale of the properties was held at Indianapolis before a full commission. Later a continued hearing was held in Valparaiso, when the state commission denied the petition. An appeal was filed in the Lake County Circuit Court, where more evidence was introduced. It was sent back to the commission, which again ruled against it. It was then certified back to the Lake County court for retrial.

The commission in the order which denied authority for sale and division of the Northwestern company took exception to methods used by the Illinois Bell Telephone Co. in contracting with the First Chicago Co. to find a purchaser for stock of the Northwestern company, the Illinois Bell being an Indiana utility and subject to commission supervision.

Under the sale arrangement now approved by the appeal court, the Winona company, of which Mr. Goodrich is a large stockholder, will receive 60 per cent of the Northwestern company's stock and the Crown Point company 40 per cent. They propose to disband the company and divide its exchange and lines on the same percentage basis, which the commission said would be without regard to service requirements and geographical locations. The Goodrich company will get the Valparaiso exchange.

Valparaiso patrons bitterly fought the plan at several hearings before the commission. They argued:

First, that Valparaiso is a part of the Calumet district—is logically associated with the communities in which the Illinois Bell operates and should be linked with a united management.

Secondly, that, because of the new capital placed into the Northwestern company and its division into two distinct units, ground is placed for rate increases.

In his opinion Judge Norton asserted that Valparaiso will not suffer. The service is good now, and the evidence shows it will remain good. Subscribers will not know of the transfer except that physical

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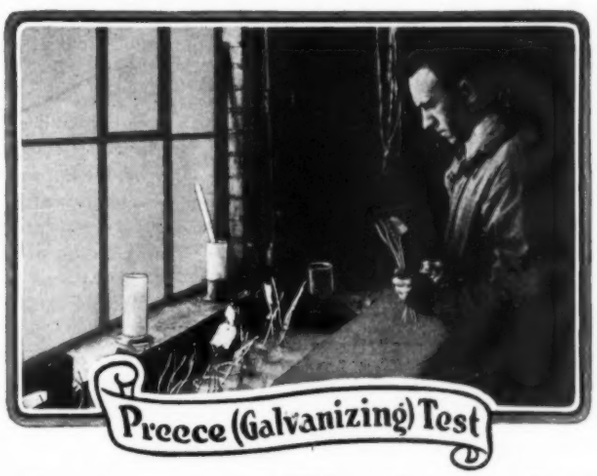


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changes will be made to better the service.

On the question of rates, the court said this matter was up to the commission. In view of the evidence, he did not see how the companies could get a raise under present conditions, and the evidence discloses no intention to ask for a raise.

Regarding changes in service the court said that no subscriber on any connecting exchange will have his status changed. While Plymouth will be the central headquarters instead of Valparaiso, connections will be as prompt, and toll connections will be as cheap.

"The owners of the Northwestern Indiana Telephone Co. should not be denied the right to sell or other petitioners the right to purchase solely because the Illinois Bell company might buy under different management," the court said. "An assumption that the Illinois Bell would take over the Valparaiso and Kouts exchanges if the petitions are denied, rests in the realm of speculation," the court added.

Judge Norton, however, believed it would be better if the Illinois Bell had control of the whole territory in Porter county, and also in Lake county. But, he declared, persons or corporations cannot be denied the right to sell and buy properties and contracts legitimately upon "our speculative doubts."

Concerning the so-called arbitrary line, a line somewhat mixed and indefinite and composed of a sort of twilight zone, establishing the limits of the Wheeler, Chesterton and Valparaiso exchanges, Judge Norton declared that it will remain exactly as it is now. Its establishment by joint consent of the twilight zone patrons and the Northwestern Indiana Telephone Co. will not be changed as the evidence discloses that no real change by ownership to two purchasers will take place.

## Increased Rates Approved; Depreciation Charges Fixed.

The Minonk Independent Telephone Co., Minonk, Ill., recently was authorized to place in effect the following schedule of net annual rates:

| | |
|---|---|
| Business, individual line | $36.00 |
| Business, two-party line | 33.00 |
| Extension | 6.00 |
| Residence, individual line | 24.00 |
| Residence, two-party line | 21.00 |
| Rural business, individual line | 30.00 |
| Rural residence, multi-party line | 24.00 |
| Rural residence extension | 5.00 |
| Desk sets | 3.00 |

The evidence submitted by the Minonk company showed a reproduction cost new of the physical property as of December 31, 1927, of $111,231. This figure was developed by using as a basis a valuation compiled by the commission's engineers in November, 1919, amounting to $64,142, and increasing this amount by 60 per cent or $38,485, for the purpose of bringing it to a present day cost level and adding the net additions from the date of the inventory to December 31, 1927.

The records showed that the appraisal made by the engineering staff in November, 1919, was based on average unit prices prevailing during the five-year period of 1912 to 1916, both inclusive, and that such units had increased approximately 60 per cent up to December 31, 1927. The evidence further showed that the depreciated value of the property was $83,423. To the latter amount the company added $4,255 for working capital, making a cost new less depreciation of $87,678.

The company submitted evidence which showed that its operating revenues for the year 1927, including toll and miscellaneous revenues, were $15,287.92, and that its operating expenses, including $4,096.56 for depreciation, were $16,951.42. After taxes and uncollectible revenue were provided for and non-operating income added, the annual deficit under the present rates would amount to $2,089.60, the commission held.

The commission found that the proposed rates, if applied to the present number of subscriber stations, would produce $4,050 of additional revenue, and would produce an amount available for return of $1,960.40, or 2.3 per cent on the depreciated cost of the physical property.

The Minonk company was also authorized to set aside annually in equal monthly installments the sum of 4,097, plus 6 per cent per annum of the cost of all net additions made after January 1, 1928, for depreciation charges.

## The Index for Volume 94 of "Telephony."

**The indext for Vol. 94 of "Telephony," which was completed with the issue of June 30, 1928, is now ready for distribution among those who keep complete files.**

**In this index are listed all of the important articles which have appeared between January 1 and June 30. It will be supplied free of charge to those making application.**

## Federal Judge Comments on Rates Following Indiana Hearing.

Owners of the Royal Center Telephone Co. were advised on June 27 by Judge Robert C. Baltzell, federal judge in Indianapolis, Ind., following a federal court hearing of an appeal from a rate order of the Indiana Public Service Commission that there is "such a thing as making rates prohibitive to users in small communities," and further that the ability of patrons to pay represented another side of the question as to whether a telephone company was entitled to what it thinks is a fair return on a fair valuation.

"The public service commission can not make rates that make telephone service prohibitive," Judge Baltzell asserted. "Subscribers will simply discontinue the service that's all, when the cost is too great."

The hearing of the Royal Center company followed that of the Steuben County Telephone Co. Both companies are subsidiaries of the Indiana Telephone Securities Corp. of Indianapolis, Ind. The parent company is a $3,000,000 holding company for a number of small companies operated by Max F. Hosea.

The complaint of the Royal Center company, which was carried to the federal court was that the commission had denied its due process of law when it refused to fix a rate valuation or to consider its rate petition, on grounds that the service was too poor to warrant rate increases. The company perhaps is one of the smallest ever to go to federal court with an appeal from the commission.

Judge Baltzell questioned heavy salary items in a statement for service produced by J. G. Wray & Co., of Chicago, engineers employed by Mr. Hosea to go over the property of the Steuben Telephone Co. preparing for the rate application. Mr. Wray testified that salary charges of $10, $15, $20, $50, and even $100 a day, were made for his employes and himself in the appraisal work. He admitted that his firm made a profit on each salary charge.

"Little exchanges had better hire cheaper engineers if they want to exist," Judge Baltzell commented. He declared that salaries of this nature were rather high in Steuben county.

## Company at Benson, Minn., Authorized to Increase Rates.

The Swift County Telephone Co. was recently authorized by the Minnesota Railroad & Warehouse Commission to place in effect an increased schedule of rates at its exchange at Benson. Following are the old and new net monthly rates of the company:

| | Old | New |
|---|---|---|
| Individual line, business | $2.50 | $3.00 |
| Two-party line, business | 2.00 | 2.50 |
| Individual line, residence | 1.50 | 1.75 |
| Four-party line, residence | 1.00 | 1.25 |
| Rural multi-party | 1.25 | 1.75 |

One-party line, business or residence, outside exchange area—individual line rate plus 25c additional for each quarter mile distance.

The company submitted an appraisal of its property as of October 1, 1927, showing a reproduction cost new including intangibles of $148,497.83 and a depreciated value of $121,595.95. The inventory was checked on the ground by a representative of the commission and the statistical department has applied to the inventory cost units found reasonable, from which it finds a reproduction cost new as of the same date including intangibles of $140,-140.74, and a reproduction cost now depreciated value of $115,299.88.

The property was carried on the books of the company on December 31, 1926, at

$65,166.19. The operating revenues for the year 1926 were $18,376.92, the operating expenses, including taxes and uncollectibles, were $14,798.81, leaving a net income available for interest, depreciation, and return of $3,578.11. The operating revenues for the year 1927 were $18,884.52, the operating expenses, including taxes and uncollectibles, were $14,614.21, leaving a net income available for interest, depreciation, and return of $4,270.31.

The estimated operating revenues under the petitioned rates are $22,826.65, the estimated operating expenses, including taxes and uncollectibles, $13,223.63, leaving a net income available for interest, depreciation and return of $9,603.02.

### Asks Increase to Meet Expense of 24-Hour Service.

The Wauneta Telephone Co. has applied to the Nebraska State Railway Commission to add 25 cents a month to rates for all classes of service, including its switched lines. It filed with the application a petition signed by more than 60 per cent of the patrons agreeing to this increase in consideration of a 24-hour service being extended. Wauneta is in the heart of the bonanza wheat farming district, and the petitioners asked haste in granting the request, as they want full service available during the harvesting season, when time is most valuable.

The company tells the commission that this will necessitate the employment of another $15 a week operator, and that the added revenues will just about meet the necessary expense for 24-hour service. The company has never paid a dividend, and its manager says it never can. Its desire is to furnish service at cost, and to make it as good as possible for the rates charged.

### Wish of Majority of Subscribers for Better Service Granted.

The petition of more than 60 per cent of the patrons of the Mitchell exchange of the Platte Valley Telephone Corp., asking the Nebraska State Railway Commission to order in common battery equipment, and to put into effect an increased schedule of rates, has been acted favorably upon by that body. The new rates are for individual and $3.25 for party business and $2.50 and $2.00 respectively for individual and party residence. The rates for rural, supplemental and switching service remain.

The new schedule is the same as in effect at the Minatare, Lyman, Oshkosh, Torrington and Bayard exchanges of the company. Only four patrons protested against the increase or the schedule of charges, which was attached to the petition as showing what the patrons regarded as reasonable.

The company was confronted with a rebuilding program, as the switchboard was filled to capacity and cable in town was all filled; and the patrons of the town, which

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is located in the prosperous sugar beet section, took the opportunity to get modern service. The company proposes spending $11,000 in making the exchange fully metallic, entirely cabling the town and taking off all poles and wires from the streets.

Its estimate of revenues and expenses, held by the commission to be too high, shows that the new rates, counting in an 8 per cent return on the plant investment of $95,469, will result in $5,233 in the red each year, with earnings $14,000 and out-of-pocket expenses $11,700.

The new rates will be effective the first day of the month that the company has completed its rebuilding program, under the terms of the order, and will be subject to the application of the standard gross and net rule.

## Asks Approval of Note Issue to Pay for Exchange.

The Dalton Telephone Exchange, of Dalton, has asked the Nebraska State Railway Commission to approve an issue of $3,000 of securities in order to take up the notes given to B. L. Carter, the former owner, when the purchase was made in May, 1927. C. J. Carley paid $5,000 for the plant, of which $2,000 was in cash. He proposes to retire the notes, which he wishes to make the notes of the company, in the next three years.

The statement of finances attached to the application shows assets of $17,124. The commission's accountant, I. J. Devoe, has recommended that a hearing be held in order to develop the facts. Among the assets are 640 acres of land valued at $4,000, but Mr. Devoe does not think that it is possible or desirable to mix assets, in a mortgage, where part of them are not devoted to the business of the company. The value of the property is unknown, and this makes it desirable that further facts be developed before any securities issue is approved.

## Abandonment of Small Nebraska Exchange Authorized.

Permission has been granted the Lincoln Telephone & Telegraph Co. by the Nebraska State Railway Commission to abandon its exchange at Endicott, the smallest one in its list. This ends an effort on the part of the company to get from under this expense that when started resulted in the legislator from that county pushing through a bill that would prevent any company having more than ten exchanges from abandoning service at any one of them unless 60 per cent of the patrons petition.

It was supposed that this would buttress the determined folks at Endicott for all time, but 60 per cent of them and more recently signed a petition, and the exchange will shortly fade out of the picture. The final force that induced this decision was an order making a stiff raise in rates that would cause the service to cost them more than if they took it from any of the other nearby exchanges.

There were only 53 subscribers, of whom five were business. The commission makes a finding that an exchange of that size cannot exist and produce, under rates that the subscriber can afford to pay, revenue sufficient to take care of even actual operating expenses. It had previously advised the patrons that in the public interest they should not saddle the company with this unnecessary expense, when they could get better service from the more modern exchange at Fairbury. The first admonition of this sort was given in 1921, when the matter was first up, but town pride prevented.

The higher rate of schedule which the commission allowed the company to put into effect May 1 was not made effective, but it served to secure the needed signatures, so that written consents of 40 of 50 subscribers was secured for the transfer, four of them to Steel City and the remainder to the Fairbury exchange.

The commission said it recognized the importance of telephone service being furnished with due regard to trade territory, and that, therefore, it would make as a condition of the order that the patrons be given a chance to choose which other exchange they desired to connect with, and that not more than ten would be permitted on any one rural line. One exception was made as one subscriber living in distinctively Steel City trade territory demanded Fairbury service. The commission said it would not require the company to go to that expense. The rates that will govern are those of the exchange to which the transfer is made.

## Chesapeake Bell Purchases Small Independent Virginia Property.

The Interstate Commerce Commission has issued a certificate of advantage and public interest on the application of the Chesapeake & Potomac Telephone Co. of Virginia to purchase the property of the Russell Telephone Co., with exchanges at Honaker and Lebanon, Va. These two exchanges collectively serve 294 subscriber stations and 29.57 pole miles of toll lines. No exchanges are maintained by the Chesapeake company at the points served by the Russell company.

On March 16, 1928, the Chesapeake company contracted to purchase all of the properties of the Russell company, excepting certain real estate, for $35,000, payable in cash. An appraisal made by the inventory and costs engineer of the Chesapeake company finds the reproduction cost new of the properties to be retained in service to be $48,713, and less depreciation, $30,754. The cost of removing property to be retired is expected to exceed its salvage value by $736. The Chesapeake company estimates that it will be required to expend $8,813 to rehabilitate the existing plant.

The Russell company represented that it does not have any books of account except subscribers' billing records and disbursement records; that it has not been found necessary to maintain financial records, but that the telephone operating revenues have approximately equaled the telephone operating expenses and expenditures made for capital purposes.

Its revenues have not been sufficient to enable it to make plant extensions and it is without other means of securing the necessary capital. The demands for service in certain sections of the county are insistent. There are a number of fairly important localities which have no telephone facilities. As soon as the Chesapeake company takes over the properties it will take steps to extend the plant to meet demands.

## Small Company Given Increase With 24-Hour Service.

The Deuel County Telephone Co., which operates at Astoria and Brandt, S. Dak., and Hendricks, Minn., was authorized by the South Dakota Railroad Commission on June 19 to increase its rates at its Astoria exchange and the rural lines connected therewith.

The company proposes to furnish 24-hour service, instead of closing at 9 p. m. A number of the subscribers at Astoria signed a petition indicating their willingness to pay the rates requested for the service.

The company serves 45 business and residence subscribers in Astoria and 158 rural subscribers. It has never paid a dividend and the commission's investigation showed that the net earnings are not now and have not been for a number of years sufficient to provide for depreciation and pay a fair return on a fair value of the property.

It was estimated that the proposed rates would provide additional net revenue of $25.55 per month at the Astoria exchange. The proposed 24-hour service would involve a total additional expense of $41.55 per month. The commission authorized the 24-hour service with the increased rental rates, effective July 1. The old and new monthly rates are as follows:

| | Old | New |
|---|---|---|
| Party line, business | $1.75 | $2.50 |
| Party line, residence | 1.25 | 1.75 |
| Rural party line, residence | 1.40 | 1.75 |
| Extension station, business | | 1.00 |
| Extension station, residence | | .75 |

The town rates are payable monthly in advance with a discount of 25 cents if paid on or before the 15th of the month in which the service is rendered.

The rural rate is payable quarterly in advance with a discount of 75 cents if paid on or before the 15th of the first month of the quarter; 50 cents if paid on or before the 15th of the second month of the quarter; 25 cents if paid on or before the 15th of the third month of the quarter in which the service is rendered.

## Wisconsin Company Incorporators Ask Authority to Issue Stock.

In an application recently filed with the Wisconsin Railroad Commission the incorporators of a new telephone company to

be known as the Citizens Telephone Co. of Wisconsin, with offices in Milwaukee, request authority to issue 500 shares of its common stock without nominal or par value for the purpose of securing funds with which to acquire the properties and assets of Beloit Farm Telephone Co., Cottage Grove Telephone Co., Belleville Telephone Co. and Brooklyn Telephone Co. The incorporators are L. H. Albertson, M. Widakovic and R. F. Mabie.

The petition sets forth that W. N. Albertson has contracted to purchase all of the physical assets of the Beloit Farm Telephone Co., together with its book accounts, cash and notes receivable, for the sum of $24,500; purchase all of the physical assets of Cottage Grove Telephone Co. for the sum of $2,500; to purchase all of the physical assets of the Belleville Telephone Co., together with its book accounts and notes receivable for the sum of $31,000, and to purchase all of the physical assets of the Brooklyn Telephone Co., together with its book accounts, cash and notes receivable for the sum of $30,000.

The Citizens Telephone Co. of Wisconsin proposes to issue the 500 shares of non-par value stock to Interstate Public Utilities Corp. for the purpose of obtaining the necessary funds with which to accomplish the purposes set forth above.

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## Commission Affirms Its Former Order Increasing Rates.

The Wisconsin Railroad Commission recently issued an order affirming its previous order in the matter of the application of the Ontario & Wilton Telephone Co. for authority to increase rates.

The commission granted a rehearing in the case on an application which alleged that the village of Ontario did not actually receive notice and was not represented at the hearing. The attorneys for the petitioners submitted a written argument in which they contend that the fair value that the commission found for the property in its former decision was too high and that the salaries of the general officers as allowed in the operating expenses were excessive. On these two grounds the petitioners held that the rates authorized by the commission in its original order were unreasonable.

The commission, after reviewing the two items, held that the value which the attorneys for the petitioners contend for is one which the supreme court, in a decision issued some time ago, ruled would be confiscatory and unreasonable. The commission stated that the value which it found was reasonable and would not be modified.

The general officers' salaries paid in 1926 amounted to $1,470, the commission found, and were allowed by the commission as not being unreasonable. These salaries were attacked on the ground that the salaries paid to general officers in prior years were not nearly as high and that the officers did not devote sufficient time to manage-

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ment of the business to justify the payments.

The commission held that probably $1,200 a year would be adequate compensation to the officers of a company of this size, but the difference between this amount and the amount paid in 1926, was not sufficient to affect the rates. As present operating conditions are changed from those in 1926, and the company cannot hope to earn a reasonable return under present operating conditions and present rates, the commission could see no grounds upon which to modify its previous order.

## Summary of Commission Rulings and Schedule of Hearings.

INTERSTATE COMMERCE COMMISSION.

June 19: Acquisition approved by the Chesapeake & Potomac Telephone Co. of Virginia of the properties of the Russell Telephone Co., which owns and operates exchanges at Honaker and Lebanon, Va.

June 28: Hearing at Washington before Examiner Davis in the matter of the proposed purchase by the Chesapeake & Potomac Telephone Co. of Virginia of the properties of the Botetourt Telephone Co., located in Botetourt county, Va.

ALABAMA.

June 28: South Central Telephone Co., Inc., of Chicago, filed petitions seeking approval of the sale to it of telephone systems in 18 towns. With the filing of these petitions this company will have asked the commission for approval of purchase by it of 48 telephone systems in Alabama since the first of the year.

July 2: Hearing on application of the South Central Telephone Co., with headquarters in Chicago, Ill., for approval of purchase by it of the plant and system of the Midway Telephone Co., Midway. The South Central company recently acquired 22 telephone properties in Alabama.

July 2: Hearing on application of the Luverne Telephone Co., Luverne, D. W. Eiland, manager, for authority to increase its rates and to require subscribers to pay in advance. Hearing also held on complaint of subscribers regarding inadequate service.

ILLINOIS.

June 20: Order approved authorizing the Illinois Bell Telephone Co. to sell and the Morrison Telephone Co. to purchase certain toll line property of the latter in the vicinity of Prophetstown, for a consideration of $1,200, upon conditions set forth in order.

June 20: Order approved suspending until October 26, 1928, proposed rates for service in Paris, Edgar county, stated in rate schedule Ill. C. C. 2, of the Wabash Valley Telephone Co.

June 20: Order approved authorizing the Standard Telephone Co. of Illinois to purchase and acquire, free from all liens, the properties of the following named telephone companies for the following considerations: Stark County Telephone Co., amount $128,712; Empire Telephone Co., amount $78,750; Odell Telephone Co., amount $32,000; Murdock Mutual Telephone Co., amount $4,000; and granting to the Standard Telephone Co. of Illinois, a certificate of convenience and necessity for the construction, maintenance and operation of a telephone system and for the transaction of a telephone public utility business in the territory now served by the existing telephone systems by this order authorized to be acquired.

June 20: Order approved cancelling rate schedule Ill. C. C. 1, of the Clayton Farmers Union Telephone Co.; authorizing the Clayton Telephone Co. to file and place in effect July 1, 1928, rate schedule Ill. C. C. 1, which schedule shall contain the same rates as contained in Ill. C. C. 1, filed in the name of Clayton Farmers Union Telephone Co., except rule 7 on sheet 2, to Ill. C. C. 1, which shall be eliminated and rule 9 on sheet 2, to Ill. C. C. 1, which shall be modified to indicate "continuous service," providing for the following annual rates: Individual business, $24.00; individual residence, $18; party-line residence, $15.00; rural switching stations, $5.50.

June 20: Order approved authorizing the American Telephone & Telegraph Co. to sell and the Illinois Bell Telephone Co. to purchase certain wires and crossarms attached to poles of the last mentioned company between Matteson and Champaign in accordance with the terms and conditions of a certain warranty deed, copy of which is attached to the application filed in docket case No. 18300, on May 14, 1928, for the consideration of $70,733.68.

June 20: Order approved suspending until October 19, 1928, proposed rules and regulations for service in Cuba, Fulton county, stated in rate schedule Ill. C. C. 2, original sheets 2 and 3, of the Cuba Central Telephone Co.

June 20: No action taken on:

Wabash Valley Telephone Co.'s original sheet No. 7, applicable to its Marshall exchange, effective July 1, 1928.

Wabash Valley Telephone Co's Ill. C. C. 2, original sheet 6, applicable to its Paris exchange, effective July 1, 1928.

INDIANA.

June 22: Increased rates on the basis of proper return on the $44,000 valuation of holdings at Loogootee authorized for the

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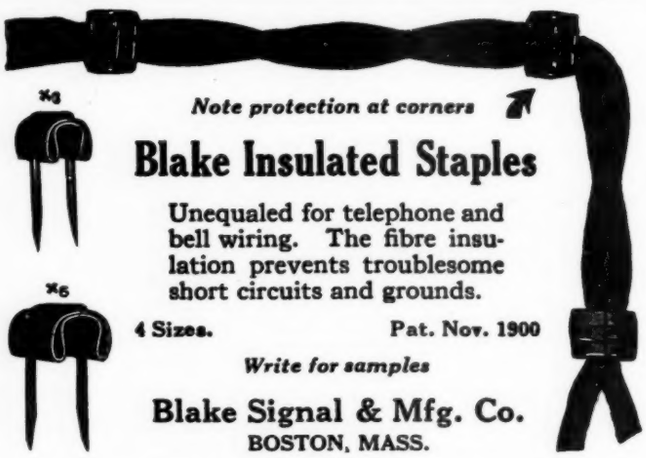


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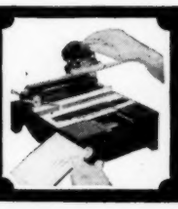

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Southern Indiana Telephone & Telegraph Co., of Seymour.

June 23: Assertion that the Indiana Bell Telephone Co. is making an unreasonable and excessive charge to patrons of the Martinsville Telephone Co., Martinsville, made in petition filed asking for a rehearing of the case. The petition was filed by the mayor of the city and members of the city council. The Martinsville company, the petition states, suffers from a 5 per cent rate of depreciation. It also is charged that the wage of student employes should be adjusted for rate-making purposes.

June 27: The Northern Indiana Telephone Co. of Warsaw, filed petition for authority to adjust rates to yield a fair return upon the fair value of its property and also a petition asking for authority to abandon its Luther exchange. The company has withdrawn its petition to abandon its Burket and Etna Green exchanges. The company also operates exchanges at Akron, Bippus, Claypool, North Manchester, Sidney, Silver Lake, Atwood, Bourbon, Mentone and Millwood.

KANSAS.

June 18: Authority to operate as a public utility granted the Kansas Telephone Co. The specific authority is to operate in the cities, and adjacent territory of Allen, Atlanta, Bigelow, Burden, Circleville, Chalk, Cleburne, Corning, Dexter, Melvern, Greeley, Irving, Kincaid, Devon, LeRoy, Linwood, Lone Elm, Mapleton, Moran, Mound City, Mildred, Olivet, Pomona, Scranton, Strawn, Vermillion, Waverly, Welda and Wheaton.

MINNESOTA.

July 6: Hearing at Emmons in the matter of the application of the Farmers Mutual Telephone Co. for authority to change its schedule of rates at Emmons and Conger.

NEBRASKA.

June 27: Application filed by Dalton Telephone Exchange for authority to issue $3,000 of securities to pay former owner.

June 29: Application filed by Wauneta Telephone Co. for authority to increase rates on all classes of service, including switching, and for authority to operate on a 24-hour schedule.

NORTH CAROLINA.

June 22: Petition of the Rock Hill Telephone Co. seeking authority for an increase of rates and asking that the case be reopened in order to allow introduction of additional testimony denied after a series of hearings during the past 14 months.

OHIO.

June 4: Suspension order entered in the case of the Clinton Telephone Co. rescinded, the proposed rates approved and the company discharged from liability under the bond filed.

June 6: Preliminary order issued authorizing the Lorain County Telephone Co., of Lorain to sell all of its property to the Lorain Telephone Co., specifying securities to be issued in payment.

June 15: Petition filed asking for approval of purchase by the United Telephone Co. of Bellefontaine, organized in 1926, of all of the properties of the Union County Telephone Co. at Marysville for $130,890 and of the Milford Center Telephone Co. at Milford Center for $19,102, United Telephone Co. requested authority to sell at par 1,500 shares of additional 6 per cent preferred stock.

SOUTH DAKOTA.

June 19: Deuel County Telephone Co. authorized to place in effect on July 1, rental rates covering the various classes of service furnished at its Astoria exchange and upon its rural party lines in connection therewith, and to place 24-hour service in effect.

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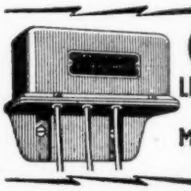
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